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EPIDEMIOLOGY AND RECENT EPIDEMICS *

SIMON FLEXNER, M.D.
NEW YORK

Since the last congress, held in 1916 in the midst of the racking uncertainties of the great war, notable events and serious calamities have befallen the world and arrested the attention of all thoughtful men. A bitter and passionate military contest has been brought to a hopeful conclusion; but because of the unparalleled cost of the struggle, in lives and in treasure, deep unrest, revolution even, starvation and disease are prevailing over a large part of Europe, while also within the three year period elapsed between the last congress and the present one three destructive epidemics of disease have ravaged the United States and the world.

Hence it has seemed fitting to me that on this occasion and before this representative body of medical men we should pause for a brief period in order to review, as it were, our knowledge of epidemics and at the same time of the practical hygienic measures, based on this knowledge, which we have already put or in ordinary course of events may reasonably hope to put into motion against the spread of these epidemics, so that we may form a judgment of the efficacy of such measures and arrive possibly at new points of view from which to launch a more decisive attack. Moreover, it seems imperative that we should consider not only the sum of our knowledge of epidemics, but also certain facts relating to the populations affected which react powerfully on the successful application of the hygienic means available.

Three epidemic diseases—poliomyelitis, streptococcus pneumonia and influenza—have been especially destructive in the western world during the past three years; also, because of certain common characteristics, they are well adapted for the purpose I have in view.

POLIOMYELITIS

In the United States we are becoming increasingly familiar with epidemics of poliomyelitis. Prior to 1907, infantile paralysis was a rare disease in this country; since then it has prevailed fitfully every summer and autumn, and in one notable instance, at least, in the winter season,[1] claiming victims by the score or hundred, until in 1916 an outbreak of unprecedented severity, with its center of violence in New York State, swept over a considerable number of states.

Fundamental knowledge of poliomyelitis may be said to have grown rapidly since Wickman's epochal clinical studies published in 1907. We are, indeed, today in possession of precise information covering essential data with regard to the nature of the inciting microorganism, notwithstanding its very minute size, and also concerning the manner in which it leaves the infected or contaminated body within the secretions of the nasopharynx chiefly and gains access to another human being by means of the corresponding mucous membranes and apparently in no other way. Moreover, the inciting virus so called, up to the present time and notwithstanding many and assiduous efforts, has not been detected apart from the infected or merely contaminated human being, and there is therefore no foundation in ascertained fact for an assumption that the virus is conveyed to persons otherwise than by other persons who harbor it.

STREPTOCOCCUS PNEUMONIA

The second example, namely, that of streptococcus pneumonia, presents a phenomenon almost, if not quite, new among the epidemic diseases. It appears as if during the winter of 1917-1918 there occurred in several localities within the United States, and also, but in less degree, in France, at least a great increase in the incidence of a type of pneumonia which previously had been very infrequent. It appears also that the greatest number of cases and of fatalities arose in the United States in the military cantonments; that the disease first prevailed as a secondary pneumonia following measles; but that before long the severity of the infection was such that cases of primary streptococcus pneumonia began to arise. Moreover, at this juncture the disease spread from the military to the civil populations.

The nature of the micro-organism inducing this form of epidemic pneumonia is indicated in the name which the disease has come to bear. The difficulty in this instance has not been in finding out the inciting microbe, but rather in differentiating the streptococci responsible for the epidemic disease from streptococci possessing the ordinary pathogenic properties, or even from those of saprophytic nature so commonly present on the upper respiratory mucous membranes without provoking widespread disease. However, numerous studies of the bacteriology of this epidemic of pneumonia, at distinct and often widely remote cantonments, showed that the microbic incitant was in almost every instance *Streptococcus hemolyticus*. Moreover, because of the wide occurrence of the epidemic pneumonia, this type of streptococcus could be found in normal throats and as a secondary invading microorganism in the lungs in cases of ordinary lobar pneu-

* President's address, read before the Tenth Congress of American Physicians and Surgeons, Atlantic City, N. J., June 16, 1919.

1. At Fairmont, W. Va.

monia. Thus far very little progress has been made in the classification of streptococci, which form a class apparently even more heterogeneous than the pneumococci.

The point I wish to emphasize is this: Regarding epidemic diseases in general we are wont to assume the introduction from without, and usually from a distant locality, of a special kind or race of micro-organism which is held directly responsible for the epidemic ensuing. In the instance of the epidemic pneumonia, no such importation or new introduction of the inciting streptococcus needs to be or actually is assumed. It is so probable as to amount to practical certainty that the excessively virulent *Streptococcus hemolyticus* was developed by a process of selection, through successive transfer from person to person, and by gradual enhancement of its invasive properties.

We are in this case on safe grounds when we assert that the inciting streptococcus is always personally borne: that is, that it leaves the respiratory organs of one person to be introduced on the corresponding organs of other persons, and in no other manner. In other words, the mechanism or mode of infection in epidemic streptococcus pneumonia, as in poliomyelitis, may be said to be clearly apprehended.

INFLUENZA

The case of influenza, the third and perhaps the most important example cited, is quite different, since wide divergences of belief and opinion regarding the nature of the inciting micro-organism and the manner of infection still prevail. The reasons for these differences are several, but the most important, perhaps, relates to the common observation of the manner of spread or attack of the disease. To the casual observer there is something uncanny in the way influenza strikes down its victims. While other epidemics proceed from bad to worse, with at least progressive increases of intensity, influenza seems to overwhelm communities over even wide stretches of territory as by a single, stupendous blow. While in the one case the gradually accelerating rate of speed of extension may be taken to indicate personal conveyance of the provoking micro-organism, in the other the sudden wide onset appears the very negation of personal communication.

Hence the invoking of mysterious influences, the revival of the notion of miasm and similar agencies, to account for this phenomenon. Indeed, the public mind in general lends itself readily to such formless concepts, for the reason that there still resides in the mass of the people, even in the more enlightened countries, a large uneradicated residue of superstition regarding disease. One does not need to look far or dig deep in order to uncover the source of this superstition. We have only recently emerged from a past in which knowledge of the origin of disease was scant, and such views as were commonly held and exploited were mostly fallacious. It is, indeed, very recently, if the transformation can be said to be perfect even now, that the medical profession as a whole has been completely emancipated. All this is very far from being a matter of remote importance only, since in the end the successful imposition of sanitary regulations involves wide cooperation; and until the majority of individuals composing a community is brought to a fair level of understanding of and belief in the measures proposed, serious and sustained endeavor to enforce them is scarcely to be expected.

And yet no better instance of a communicable disease could perhaps be invoked than influenza to exorcise the false idea of the mysterious origin of epidemics. To dwell solely on the sudden and overwhelming stroke of the disease is wholly to overlook the significant incidents that precede the mass infection, because they are of such ordinary nature and lack all dramatic quality. Accurate observers noted long ago that influenza in its epidemic form did not constitute an exception to the common rule governing epidemic diseases, which were obviously associated with persons and their migrations. What the early students made out by tracing the epidemic backward to its point of departure, more modern observers have confirmed by carefully kept records, often graphically compiled, as in the excellent instance of the Munich records covering the epidemic of 1889-1892, which can now be supplemented by a number of similarly constructed records of the epidemic just passed. These detailed records show convincingly a period of invasion during which there is a gradual rise in the number of cases, to culminate, within a period variously estimated at from one to three weeks, in a widespread, so-called "explosive" outbreak of the disease.

It happens that the early cases of epidemic influenza tend not to be severe, chiefly because they rarely are attended by pneumonia and hence are frequently mistaken, and the confusion in diagnosis is resolved only when the full intensity of the epidemic is realized. In the meantime, rich opportunity has been afforded for the free and unrestricted commingling of the sick and the well, of doubtless healthy carriers of the inciting agent and others, until so high a degree of dissemination of the provoking micro-organism has been secured as to expose the entire susceptible element of the population, which happens to be large, to an almost simultaneous response to the effects of the infecting microbe.

Deductions of like import can be drawn from the geographic movements of influenza epidemics. In eastern Russia and Turkestan, influenza spreads with the pace of a caravan, in Europe and America with the speed of an express train, and in the world at large with the rapidity of an ocean liner; and if one project forward the outcome of the means of intercommunication of the near future, we may predict that the next pandemic, should one arise, will extend with the swiftness of the airship. Moreover, not only is this rate of spread determined by the nature of the transportation facilities of the region or the era, but towns and villages, mainland and island, are invaded early or late or preserved entirely from attack according as they lie within or without the avenues of approach or are protected by inaccessibility, as in instances of remote mountain settlements and of islands distant from the ocean lanes or frozen in during winter periods.

It is desirable, in the interest of clear thinking, to carry this consideration of the characteristics of epidemic influenza a step farther. A feature of the epidemic disease of particular significance is the tendency to recur, that is, to return to a stricken region after an interval, usually of months, of relative quiescence. Thus the beginnings of the last pandemic in western Europe and the United States have been traced to sporadic cases appearing in April, May and June, possibly even earlier in certain places, while the destructive epidemic raged during September, October and November of 1918. There are very good reasons for believing that in itself influenza is not a serious

disease, but that its sinister character is given by the remarkable frequency with which it is followed, under particular circumstances, by a concomitant or secondary pneumonic infection to which the severe effects and high mortality are traceable. Now it is this high incidence of pneumonia, the product of invasion of the respiratory organs with bacteria commonly present on the upper respiratory mucous membranes—streptococci, pneumococci, staphylococci, Pfeiffer's bacilli, and even meningococci—that stamps the recurrent waves of the epidemic with its bad name.

If we compare the pneumonic complications of influenza with those which arose in the cantonments in 1917-1918, first as attendants of measles and later as an independent infection, we note immediately that in both instances the severe effects and high fatalities arose, not from bacteria brought or imposed from without, but from their representatives which are commonly resident on the membranes of the nose and throat in health. Whatever we may have to learn of the micro-organism inducing measles, still undiscovered, and of influenza, still under dispute, and their mode of invasion of the body, no one would question that the bacteria inducing pneumonia are personally borne.

EFFICACY OF PUBLIC HEALTH MEASURES

With these various considerations before us, we may now discuss the question of the efficiency of our public health measures in diminishing the incidence of epidemic diseases. It should now be evident that our three examples are essentially instances of respiratory infections, that is, diseases in which the inciting micro-organism enters the body by way of the air passages, although not necessarily, as in poliomyelitis, directly injuring those parts. Protection in diseases of this class is not to be secured by applying sanitary measures on a wide scale to an extraneous and inanimate source of the infectious micro-organisms, as to water supplies contaminated with the dejecta of typhoid patients, or even to inferior animal species, such as the mosquito or the rat, which act as intermediaries in conveying the germs of yellow fever or of infectious jaundice; but it is alone to be attained by methods of personal hygiene, applied on the individual scale of safeguarding one person from another, the most difficult of all hygienic regulations to enforce.

Returning now to epidemic poliomyelitis, we may fairly claim that we are in possession of the essential facts which, if widely applicable, should enable us to control the spread of that disease. But we can, I think, hardly claim that up to the present time our accomplishments in that direction have been remarkable. It is sufficient merely to compare the curve of incidence of the Swedish epidemic of 1905, before the nature and mode of infection of poliomyelitis were known, with those of the last several years, in Massachusetts and New York State for example, in order to conclude that the progress of the epidemics in the several places was practically identical.

And, indeed, this is what might be expected in view of the difficulties surrounding the prompt and accurate diagnosis of poliomyelitis in its atypical and abortive, often ambulant forms. Once the disease is introduced under conditions favoring its epidemic spread, a wide dissemination of the inciting micro-organism takes place, and a constantly increasing number of persons becomes exposed to its presence before any restrictive measures are put into effect, and indeed also after they have been applied. In the case of poliomyelitis, as in that of influenza itself, a wide distribution of the infectious agent precedes the enforcement of preventive sanitary regulations. These considerations do not, of course, warrant intermission of the protective measures now in use, which undoubtedly save many individuals from exposure and thus from potential attack; they do, however, offer an explanation of why, up to the present time, greater success has not attended efforts at control once the epidemic is under full way.

The case with the epidemic pneumonias is of another order: They represent theoretically two diseases which should respond to methods of control based on our knowledge of their mode of infection. In the epidemic streptococcus pneumonia and the pneumonia following influenza we are dealing with pathologic conditions in which not a newly introduced, extraneous micro-organism is operating widely and insidiously, but one in which the active microbes concerned are examples merely of intensified races of common and almost omnipresent species belonging to the flora of the nasopharynx. The infectious agents in these instances are contained within the nasal, buccal and bronchial secretions, and are disseminated in the sprayed material which is coughed or otherwise thrown into the surroundings of the patients. The lesson, therefore, to be derived from the severe experience of the recent pneumonia epidemics is to the effect that measles and influenza patients are not to be assembled into large groups or kept in open wards, but should be placed in separate rooms or cubicles, where they and their attendants may be preserved as far as possible from sputum droplet contamination. In the instance of epidemic pneumonia, a chain of direct infection from one patient to another tends to be established, and hence the sanitary control of those diseases is to be sought through the breaking, as it were, of this vicious circle.

A distinction has now been intimated in the possibilities of direct sanitary control between the two epidemic diseases—namely, poliomyelitis and influenza—introduced from without, and the pneumonias, which are mere, if intense, exaggerations of sporadic diseases ordinarily prevailing. I propose now to lay before you a suggestion as to means of attacking the exotic epidemic diseases which may come to merit serious attention.

ERADICATION OF DISEASES IN ENDEMIC FOCI

Epidemic diseases in the commonly accepted sense have fixed locations—the so-called endemic homes of the diseases. In those homes they survive without usually attracting special attention often over long periods of time. But from time to time, and for reasons not entirely clear, these dormant foci of the epidemics take on an unwonted activity, the evidence of which is the more frequent appearance of cases of the particular disease among the native population, and sooner or later an extension of the disease beyond its endemic confines. Thus there are excellent reasons for believing that an endemic focus of poliomyelitis has been established in northwestern Europe from which the recent epidemic waves have emanated.

Similarly, there are excellent reasons for regarding the endemic home of influenza to be eastern Europe, and in particular the border region between Russia and Turkestan. Many recorded epidemics have been shown more or less clearly to emanate from that area, while the epidemics of recent history have been traced there with a high degree of conclusiveness. From this east-

ern home, at intervals usually of two or three decades, a migrating epidemic influenza begins, moving eastward and westward, with the greater velocity in the latter direction.

Now since the combating of these two epidemic diseases, when they become widely and severely pandemic, is attended with such very great difficulty and is of such dubious success, and this notwithstanding the prodigious public health contests which are waged against them in which the advantages are all in favor of the invading micro-organismal hosts, it would seem as if an effort of central rather than peripheral control might be worth discussion. According to this proposal, an effort at control amounting even to eventual eradication of the diseases in the regions of their endemic survival would be undertaken, an effort, indeed, not occasional and intensively spasmodic, as during the pandemic excursions, but continuous over relatively long periods, in the hope that the seed beds, as it were, of the diseases might be destroyed.

That such an effort at the eradication of a serious epidemic disease may be carried through successfully, the experience with yellow fever abundantly proves. In attacking that disease, the combat was not put off until its epidemic spread had begun and until new territory, such as New Orleans, Jacksonville and Memphis, had been invaded; but the attack was made on its sources at Havana, Panama and now Guayaquil, to which endemic points the extension into new and neutral territory had been traced.

I do not disregard the essential fact, in bringing this suggestion forward, that the control at its sources of yellow fever is quite another and probably far simpler problem than the control in their endemic foci of poliomyelitis and influenza. It is, perhaps, unnecessary to go far into the reasons why the latter would doubtless prove to be far more difficult of accomplishment than has been the former. I am not now engaged in presenting a plan of operation or proposing that the attempt at eradication be made immediately. Our knowledge of all the facts involved in the epidemiology of poliomyelitis, and especially of influenza, may still be too imperfect for immediately effective action. But the very magnitude of the problem of these otherwise uncontrollable epidemic diseases invites to an imaginative outlook which, while perhaps nonrealizable today, may not, in view of the rapidly advancing knowledge of the infectious diseases, be hopelessly out of reach tomorrow.

Nor am I insensible to the labor and cost in money and talent which the setting out on such an ambitious enterprise would entail. But here, at least, is a world problem of such proportions and nature as to invite the participation of all the scientifically advanced countries in a common effort to suppress one of the most menacing enemies of civilized man and of human progress.

In proposing to strive for the high achievement, not merely of parrying the blows struck by destructive epidemics, but of rendering them impotent to strike in the future, we may pause for a moment to reflect on the different ways in which peoples react to great calamities, such as those brought by war and by disease. As the results of a cruel and devastating war, revolutions in governments supposed the most stable may occur; no such result follows on still more devastating epidemics. The recent epidemic of influenza claimed, possibly, more victims than did the great war, and the losses to the world in emotion spent, treasure consumed, and progress impeded are incalculable; yet, through a fortuitous circumstance of psychology, from the one calamity the world may emerge chastened, perhaps even bettered, while from the other, because of a depth of ignorance amounting often even to fatalism, mankind may largely miss the deep meaning of the lesson.

USE OF RADIUM IN FIFTY CASES OF UTERINE HEMORRHAGE

FROM CAUSES OTHER THAN CARCINOMA OR MYOMAS *

S. M. D. CLARK, M.D.
Professor of Gynecology, Tulane University of Louisiana School of Medicine
NEW ORLEANS

Radium being comparatively a new agent, it is premature to take the position that it has yet reached its maturity or possibilities. As all innovations do, it is now running the critical gamut. In one camp it is unconditionally condemned, while in the other it is equally acclaimed. Where such contention exists the truth is found in the midway position.

Though radium is yet in its developmental period, and though already we have abandoned some of our earlier fondest hopes, still, in the past five years, there have been deduced certain well established clinical facts.

Menstruation is a complex process influenced by innumerable factors, ranging from undeveloped organs, defective endocrines and new growths down to constitutional dyscrasias. In many instances its derangement is a local expression of a constitutional condition; therefore it is most difficult correctly to divide cases of uterine bleeding, of these types, into segregated pathologic groups. In some instances the true pathology is not understood. For the purpose of presentation, the cases have been divided into three nominal groups.

GROUP 1. HEMORRHAGE IN YOUNG WOMEN

In Group 1 are placed those cases in which there is an excessive bleeding, with no marked local discomfort, but a decided constitutional impairment resulting from too great a loss of blood. In many of these cases there is no discernible anatomic wrong. Curetting, organotherapy and constitutional remedies fail; the bleeding continues, and in severe cases something radical must be done. What this "something radical" must be reduces itself to the removal of some of the organs, or to allowing the future welfare of the young woman to be jeopardized. Surely many of us have encountered such cases, and the action to take presents a serious problem.

If radium does not act, as we believe, entirely through altering ovarian function, but rather by altering the endometrium and myometrium, then it seems that this is a most valuable field for its use. The literature contains some encouraging reports, and it appears reasonable, as we improve and refine our technic, to expect some substantial help. Certainly it would be most valuable to know that excess bleeding could be controlled and the menstruation not suppressed.

Our experience has not been extensive in this group. In one of five cases there is one in which, by the use of

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small, graded amounts of radium, the flow was returned to normal. In another case, an effort to check the flow by graded doses failed, and the treatment had to be pushed on to complete cessation; but even this was better than an abdominal operation.

ILLUSTRATIVE CASES[1]

CASE 1 (62447)—*History.*—Miss R. B., a schoolgirl, aged 17, began menstruation at the age of 12 years. The flow was very profuse at the first menstruation and has continued so. She was operated on, June 5, 1917, and a curettage was performed. Since July 17, 1917, she had had practically a continuous vaginal bleeding. Three applications of radium were given, of 1,500 mg. hours.

Result.—Complete suppression of the menses followed.

CASE 2 (57958)—*History.*—A woman, aged 28, had a cyst removed from the right ovary when she was 22. Four months ago the menstruation began to be excessive and resulted in a flow lasting twenty-five days. She was curetted twice. Four treatments with radium of 3,859 mg. hours were given.

Result.—There was complete cessation of menses.

CASE 3 (55149)—*History.*—A woman, aged 33, for several years had had very irregular menstruation, sometimes lasting twenty-eight days. She was operated on for suspension, with no relief. One treatment with radium of 750 mg. hours was given.

Result.—The menstruation returned to a normal and two day type.

CASE 4 (57943)—*History.*—A girl, aged 16, started menstruation at the age of 13 years. It was very scanty and irregular. The uterus was curetted, Sept. 15, 1917, after which the menses stopped for three months, and the patient then bled continuously for two months. A small amount of radium was used from an outside source with no relief. Treatment of 1,275 mg. hours was given.

Result.—Two treatments produced a cessation of the menses.

CASE 5 (57783)—*History.*—Mrs. E. J., aged 25, began menstruation at the age of 14 years, and was made very sick from its inception. The bleeding lasted eight weeks, coming in large clots, and the flow was profuse. The menses were never regular. She had had one living child and two miscarriages, the last one a year ago, followed by four months of bleeding. She had had numerous operations. For the past year she had menstruated twice a month, each period lasting from six to seven days. For the past two months she had had a continuous uterine bleeding. Four applications of radium were given, the first of 75 mg., with eleven hours' exposure, and the remaining three of 50 mg., with eleven hours' exposure.

Result.—The condition was entirely relieved.

GROUP 2. AGGRAVATED AND INTRACTABLE DYSMENORRHEA

Cases of violent dysmenorrhea which have resisted all treatment, and in which the general health is markedly impaired, are placed in this group. The affection is most frequently seen in the neurotic type who are reluctantly yielding to advancing years and are as yet unmarried. It is commonly observed in teachers, or in those lately beginning to work, their mission in life still unsettled. The patient has about ten comfortable days in a month, the rest being spent in bed or in struggling to keep up during the premenstrual or the postmenstrual storm. In many of these patients there may be found no anatomic wrong, but the distress is there and is gravely altering her life. We have all had these rebellious cases, in which endocrines, stem pessaries, curetting and climatic changes fail, and in which it is imperative that something be done. As a final measure, if the life is to be useful, menstruation must be stopped. We know that radium will cause the cessation, and we know further that the treatment is less painful and upsetting than an ablation operation and, still further, that it does not seem to be followed by as intense nerve disturbances. Twelve such cases are here reported, complete relief being obtained in all, chiefly through suppression; but in one instance the treatment relieved the pain, and normal menstruation continued, just as resulted in Case 3 in the preceding group.

ILLUSTRATIVE CASES

CASE 6 (64044)—*History.*—Miss L. S., aged 35, a schoolteacher, began menstruation at the age of 14 years and has always suffered pain, but had gradually grown worse in the past four years. She had been unable to teach in this time during her period. She suffered intense headache and backache, and her general health had been markedly impaired. She scarcely recovered from one month's epoch before another appeared. The organs were normal to palpation. A dilatation and curettage were performed and a stem pessary applied, without relief. She was given three applications of radium of 50 mg. and ten hours' exposure each.

Result.—A complete suppression of menstruation and a marked improvement of general health have followed.

CASE 7 (57686)—*History.*—Mrs. P., aged 28, who began menstruation at the age of 15 years, suffered severe pain and stayed in bed two days each month. She had been married two years, but had no children. She was operated on, March 13, 1913, having the left ovary removed and part of the right. Her general health improved after the operation, but at the menstruation period she suffered severe pain all over the abdomen, and was forced to remain in bed, with frequent urination during the period. Five applications of radium were given, three of 50 mg., with ten hours' exposure, and two of 75 mg., with ten hours' exposure.

Result.—Suppression of the menstruation followed.

CASE 8 (62803)—*History.*—Mrs. V. B., aged 23, a saleswoman, began a normal menstruation at the age of 13, which gave her no trouble until Feb. 14, 1917, when the flow became profuse and very painful. She was curetted in April, 1917. The appendix was removed, May 15, 1917. The flow had been practically continuous since the April operation. The patient suffered great pain in the back, and general discomfort, and was anemic. She was given a treatment of 50 mg. of radium, Aug. 26, 1917, for a ten hour period, 50 mg., Sept. 9, 1917, and 25 mg., Sept. 19, 1917.

Result.—Complete relief followed.

CASE 9 (65262)—*History.*—Mrs. P. D., aged 31, who menstruated at the age of 13 years and thereafter regularly and normally, and who had been married fourteen years, having one child, aged 11 years, was operated on four years ago. An appendectomy was performed and a laceration sutured. For the past few years menstruation had been very scant, but the pain was so severe that it necessitated the use of hypodermic injections of morphin. This condition gradually grew worse. Four applications of radium were given, two of 50 mg. and two of 75 mg., ten hours' exposure each.

Result.—Complete relief followed.

CASE 10 (60654)—*History.*—Mrs. R. H., aged 33, who began menstruation at the age of 15 years, had been married eleven years, having no pregnancies. She had always suffered excruciating pains at the menstrual period, going to bed three days, and had passed large clots of blood. The flow was very profuse. Five applications of radium were given, each of 50 mg. and ten hours' exposure.

Result.—The menstruation was suppressed and there was complete relief.

CASE 11 (57713)—*History.*—Miss H. H., aged 30, began menstruation at the age of 14 years, and it was regular until she was 17, when it became irregular and developed pain. The pain had gradually grown more intense and she had to remain in bed one week. The flow was very profuse, especially in the past six months. Six applications of radium were given, each of 50 mg. and ten hours' exposure.

Result.—Complete relief followed.

1. Publication of the cases reported in this paper is made possible through the courtesy of the Radium Institute of New Orleans. This institute is composed of eight physicians of New Orleans, of whom the author is one.

Case 12 (53695)—*History.*—Mrs. P. G., aged 25, who had been married four years, suffered with dysmenorrhea before and after marriage until the birth of her child. The appendix was removed, the ovary resected and the uterus suspended shortly after her confinement. She then suffered with pains in both sides, and with a profuse menstruation, lasting seven days and extremely painful. She also had severe cramps in the legs. Two applications of radium were given, 75 mg. total twenty-four mg. hours.

Result.—Complete relief followed.

Case 13 (61710)—*History.*—Miss M. A., T. N., aged 35, menstruated normally until ten months ago, when she began suffering great pain and having a profuse flow. She had had a decided loss of weight in the past ten months. Two applications of radium were given, one of 50 mg., with ten hours' exposure, and one of 75 mg., with ten hours' exposure.

Result.—Suppression of menstruation followed and great improvement.

Case 14 (68655)—*History.*—Mrs. V. B., aged 38, had a normal menstruation at the age of 13 years, and had been married fifteen years, having one child, aged 11, and one miscarriage, seven years ago. Nine months ago an appendectomy and a myomectomy were performed on her. She had a scant menstruation, and felt dreadfully during the period, suffering general prostration. One application of radium of 50 mg. was given of 525 mg. hours.

Result.—Menstruation stopped for six months and then reappeared as the three day type, with no pain.

Case 15 (55352)—*History.*—Mrs. H., aged 35, who had been married ten years, and concerning whom there is no record of menstrual history, was operated on two years ago for profuse menstruation, but without relief. She suffered intense headaches at the time of the flow, necessitating her remaining in bed. Two applications of radium of 75 mg. were given, with ten hours' exposure.

Result.—Suppression of menstruation and complete relief.

Case 16 (56065)—*History.*—Mrs. E. T., aged 30, had been married eight years and had never suffered from menstrual periods before her marriage. She had been married two years when a child was born, and was healthy for two years after, when pains in the sides and ovaries developed during menstruation. The menstruation began to be irregular and to appear twice a month. The patient was curetted one year ago for continuous bleeding, which was checked temporarily, but again appeared with the former pains. One application of radium of 75 mg. was given, with eighteen hours' exposure, a total of 1,350 mg. hours.

Result.—The flow gradually decreased. There have been no late reports.

Case 17 (66803))—*History.*—Mrs. A. C., aged 32, who had menstruated normally and regularly until two years ago, had been married thirteen years and had had two children, the youngest aged 10. She had had no miscarriages. For the past two years the periods had been exceedingly painful and associated with nausea and intense headaches. Three applications of radium were given, two of 50 mg. and one of 75 mg., each with ten hours' exposure.

Result.—Complete relief followed.

Case 18 (71289)—*History.*—Mrs. M. D., aged 46, who had been married twenty-seven years and had no pregnancies, and whose menstruation was, as a rule, irregular, was operated on five years ago, an appendectomy and the removal of one tube and ovary being performed. After the operation the menses were regular, accompanied by a great deal of pain, requiring her to go to bed for a week. For the past three years she had been menstruating every three weeks; and for the past month the flow was very profuse, lasting from eleven days to two weeks. Four applications of radium of 50 mg. were given, with ten hours' exposure.

Result.—Complete suppression of the menses and complete relief followed.

GROUP 3. CHRONIC METRITIS

In this division falls the greatest number of cases. For want of a better term "chronic metritis" is used. Whether the pathologic condition is polypoid, hypertrophic or hyperplastic endometritis, or results from myopathic or vascular changes, most of these conditions are combined in the term "chronic metritis."

The ages of the patients are usually between 36 and 56 years. Many have had numbers of children; the uterus is in malposition, enlarged and firmer than normal, having associated therewith an enlarged chronic cervicitis. In these cases, bleeding is often rebellious; the patients may be curetted repeatedly, to no avail, and the final cure comes about through hysterectomy. Often the bleeding is so profuse that packing becomes necessary. To treat the condition, inflammatory diseases must be eliminated first; next, an exploratory curettage is performed in search of malignancy. Then, by the application of radium, the menstrual life is brought to a close. So far as our experience extends, it seems that the nerve upheaval is less through this method than the surgical. It is well known that most of these uteri have about completed the useful period, and when complicated by pathologic changes following a low grade infection, only complete removal gives the desired relief. Radium is unquestionably preferable in that it accomplishes the same result with less discomfort and no danger to life. As will be seen from the histories, thirty-five such cases were treated, with one partial failure. In this case there persisted an occasional bleeding, especially after coitus, and fearing potential malignancy, the uterus was removed.

There is some discomfort associated with radium intra-uterine applications, as seen in malaise, nausea and general lassitude, lasting from twenty-four to thirty-six hours; but this is negligible in most cases, and its worst form is in no way comparable to the operative course. If radium had no other field of virtue than is evidenced in this group, its use is warranted.

Though radium is by no means fully developed, and even if we discount some of the earlier claims for it, there have been produced sufficient positive data to cause it to take rank as a useful agent, and I feel that it should be made available to the localities through cooperating professional groups.

ILLUSTRATIVE CASES

Case 19 (58300)—*History.*—A woman, aged 42, who menstruated at the age of 14 years, and whose flow continued regular and normal, had been married eighteen years. The oldest child was aged 16 and the youngest 11. For the past year menstruation had been very irregular and very profuse, lasting five days. At the last period there was a heavy flow lasting twelve days. Examination revealed a large uterus, freely movable. Two applications of radium were given, one of 75 mg. and the other of 50 mg., both with eleven hours' exposure.

Result.—Complete relief followed.

Case 20 (62969)—*History.*—Mrs. H. S., aged 29, whose menstruation began when she was 16, and who has one child, aged 3, was curetted two years ago and had the uterus suspended and the appendix removed. For a year and a half following she had a profuse flow during menstruation, and for the past two months the flow had been almost hemorrhagic, and accompanied with pain and large clots. She had pain in the back and the ovarian region, and lost weight and became constipated and anemic. Three applications of radium were given, each of 50 mg., with eleven hours' exposure.

Result.—Complete relief followed.

Case 21 (61200)—*History.*—Mrs. L. T., aged 35, began menstruation at the age of 15 years, which was irregular and lasted eight days from the start. She had been married three months. The appendix was removed in September, 1916. Since the operation she had been bleeding twice a month. Menstruation was profuse and lasted from ten days to two

weeks. She was very weak from the loss of blood. Two applications of radium of 50 mg. each were given, with eleven hours' exposure.

Result.—Complete suppression of the menses followed.

CASE 22 (65485)—*History.*—Mrs. F. Y., aged 36, who had been married ten years and had one child, aged 9 (no miscarriages), had menstruation which was regular, but always painful. About a year ago the flow became more profuse and more painful. She was operated on in June, 1917, an appendectomy, a removal of the left ovary and a resection of the right ovary being performed. Six weeks after the operation she had a severe hemorrhage, necessitating packing. The uterus was large, freely movable and normal in position. The patient was a marked neurotic and definitely anemic, and was almost a physical wreck from the excessive bleeding. Four applications of radium were given, two of 75 mg. and two of 50 mg. each, with ten hours' exposure.

Result.—A complete suppression of menstruation and a complete transformation constitutionally followed.

CASE 23 (64525)—*History.*—Mrs. A. P., aged 40, had been bleeding profusely off and on for the preceding nine years, and an amputation of the cervix and a curettage were performed five years ago. She has seven children, the youngest aged 10. After the operation, the bleeding was more profuse, hemorrhagic at times. There were severe pains in the abdomen during menstruation. Four applications of radium of 50 mg. each were given, with ten hours' exposure.

Result.—Complete relief followed.

CASE 24 (73309)—*History.*—Mrs. W. R., aged 31, had had a profuse uterine bleeding for three weeks. She was curetted, Sept. 16, 1918. Relief followed for only two months, and then bleeding recurred. There was a slightly bloody discharge off and on, and the flow was very profuse at the time of her period. Three applications of radium of 50 mg. each were given, with ten hours' exposure.

Result.—Complete relief followed.

CASE 25 (56058)—*History.*—The patient, aged 38, began menstruation at the age of 14 years. The flow was regular but profuse. She had two children. For several years she had had frequent bleeding, both at the regular period and between the periods. Curettage relieved her for only two months. The bleeding stopped for ten days; then, September 13, the flow started and continued almost hemorrhagic, until November 9. One application of 75 mg. of radium was given, with twelve hours' exposure, 900 mg. hours.

Result.—There has been an improvement in bleeding, but it has not entirely stopped.

CASE 26 (61691)—*History.*—Mrs. A. J., aged 31, was perfectly healthy until four years ago, when her menstruation began to be irregular, very profuse, and to last five days. She was operated on one year ago. A dilatation and curettage and an appendectomy were performed, but no relief was obtained. The patient suffered loss in weight and became anemic. Four applications of radium were given, three of 50 mg. and one of 75 mg. each, with eleven hours' exposure.

Result.—The condition was relieved.

CASE 27 (65465)—*History.*—A woman, aged 42, began menstruation at the age of 17 years, which was regular and of five days' duration, and had had five full time children, the youngest of whom is aged 5. The patient was well until May 11, 1917, when she was awakened by a flooding which lasted ten hours. She had not flooded any more until two months ago. During the past two months she had had two hemorrhages, gradually growing worse. During this hemorrhage her temperature was as high as 103.5. Feb. 22, 1918, a dilatation and curettage was performed. Seventy-five mg. of radium were introduced at the time of operation, with nineteen hours' exposure, 1,425 mg. hours. March 13, 75 mg. were given, 900 mg. hours. The patient returned to the city a few months ago with a temperature of 102, whereupon a pyometra was discovered containing from 6 to 8 ounces of pus, which was drained.

Result.—The patient continued normal.

CASE 28 (73517)—*History.*—Mrs. O. W., aged 39, concerning whom there was nothing of interest in her early menstrual life, was curetted three times for excessive bleeding, the last curettage being performed eleven years ago. She has one full term child, aged 16, and had one miscarriage eight years ago. Since this time had had excessive bleeding. The flow had continued for five or six months and been very profuse at times. Three applications of radium were given, two of 50 mg. and 1 of 75 mg.

Result.—Complete cessation of the menses followed.

CASE 29 (56976)—*History.*—Mrs. M. C., aged 36, had had menorrhagia for the past four years. Three months ago she had a severe hemorrhage, and there had been an excessive flow for the past two months. One application of radium of 75 mg. was given, with twenty-four hours' exposure; four days later another, with twenty-two hours' exposure, and another with fifteen hours' exposure.

Result.—Complete cessation of the menses has followed.

CASE 30 (67828)—*History.*—Mrs. C. O., aged 40, who had had two children, the youngest of whom is aged 16, menstruated regularly until one year ago; she then began having flooding spells lasting from five to six days, and loss in weight. One application of 50 mg. of radium was given, with ten hours' exposure.

Result.—No return of bleeding; she was discharged relieved.

CASE 31 (73559)—*History.*—Mrs. S. C., aged 32, who had had four children, of whom the youngest is aged 4, had always had profuse bleeding during menstruation, but in the past four years it had increased in duration and in quantity. The patient was operated on a year ago; a cyst on the ovary was removed and a curettage performed. Since that time the bleeding has been more profuse and alarming, so that packing was the only means of control. She came to her physician to know if the uterus should be removed or if there was any other way that the alarming hemorrhage could be controlled. Three applications of radium were given, two of 75 mg. (one with ten hours' exposure and the other with twenty-four hours' exposure), and one of 50 mg., with ten hours' exposure.

Result.—Suppression of the menses and marked improvement constitutionally followed.

CASE 32 (57201)—*History.*—The patient, whose menstruation began when she was 15, and which was always regular until two years ago, had had five children, three of whom are living. Four years before the radium was applied, an amputation of the cervix and a curettage were performed for excessive bleeding and irregular menstruation. At the time of the operation the uterus was large and freely movable, and the amputation was performed with the hope that the uterus would diminish in size. The patient objected to removal of the uterus. Three applications of radium were given, of 100, 75 and 50 mg., with ten hours' exposure each.

Result.—The flow became slight, with spots after coitus. A hysterectomy was performed, but no malignancy found.

CASE 33 (56497)—*History.*—Mrs. P., aged 46, was in good health until six years ago, when she began to suffer with painful menstruation. Three years ago she began having an irregular flow, showing every three weeks and rather profuse. She was operated on one and one-half years ago for the removal of a polypus on the cervix. She also took roentgen-ray treatments. The flow reappeared six months later, hemorrhagic in character. One application of 75 mg. of radium was given, with ten hours' exposure.

Result—Painful menstruation was entirely stopped and there has been no vaginal discharge.

CASE 34 (62617)—*History.*—Mrs. A. D., of whose case there is an incomplete history, was curetted unsuccessfully for excessive menstruation and profuse vaginal discharge. She was given an application of 25 mg. of radium, with twelve hours' exposure, with two large exposures.

Result.—Complete cessation of the menses followed.

CASE 35 (60940)—*History.*—Mrs. E. D., aged 41, whose menstruation began when she was aged 14, and was of the regular normal type, had been married nineteen years and had had two children, the oldest of whom was aged 16 and the youngest 11. She had had almost continuous uterine bleeding for the past year, very profuse at times and passing large clots. Amputation of the cervix was performed, June

30, 1917. Two applications of 50 mg. of radium, each with ten hours' exposure, were given.

Result.—Complete relief followed.

Case 36 (65653)—*History.*—A woman, aged 42, who had been married twenty-one years, and has one child, aged 17, had been operated on six times for the repair of laceration and the removal of one ovary and tube. She had had fairly good health, only painful menstruation. Three months ago the menstruation began being irregular, appearing every fifteen days and lasting nine days. For the last six weeks she had been bleeding practically continuously, passing large clots. Three applications of 50 mg. of radium were given, each with ten hours' exposure.

Result.—Cessation of menses and complete relief followed.

Case 37 (68847)—*History.*—Miss H. K., aged 40, the history of whose case is incomplete, had profuse vaginal bleeding. There had been previous local treatment without result. Three applications of 50 mg. of radium were given, each with ten hours' exposure.

Result.—Complete cessation of the menses followed.

Case 38 (63434)—*History.*—Mrs. M. L., aged 51, who had had ten children, of whom the youngest is aged 8, was curetted eight years ago for bleeding almost continuously, with a profuse flow. The menstruation was regular until twelve years ago, and since that time the patient had been bleeding in between the periods, the flow lasting from four to five days. Preceding the radium treatment, the bleeding was profuse and hemorrhagic in character. The vagina had to be packed to stop the flow. Two applications of radium were given, one of 50 mg., with eleven and one-half hours' exposure, and one of 75 mg., with eleven hours' exposure.

Result.—Complete cessation of the menses followed.

Case 39 (69957)—*History.*—Mrs. E. A., aged 50, who had had six children, of whom the youngest is aged 14, had had no menstrual disturbance until four months ago, and since that time had been bleeding almost continuously with a profuse flow, at times hemorrhagic in character. She was quite anemic, and felt weak from the loss of blood. Two applications of radium were given, one of 75 mg., and one of 50 mg., each with ten hours' exposure.

Result.—Complete cessation of the menses followed.

Case 40 (71949)—*History.*—Mrs. C. P., aged 53, who went through the menopause four years ago, a year later, from excitement and nervousness, had bleeding start again. There had been a slight flow, lasting one or two days, for the last year. Malignancy was eliminated. Two applications of 50 mg. of radium were given, each with ten hours' exposure.

Result.—There was no evidence of bleeding.

Case 41 (54998)—*History.*—A schoolteacher, aged 42, who began menstruation at the age of 14 years and was anemic, had no abnormal features of the flow until six years ago, when she developed an irregularity and menorrhagia. The condition had gradually grown worse, and she had been bleeding for the last ninety-five days. The uterus was slightly enlarged, the adnexae negative. Two applications of 50 mg. of radium were given, each for twelve hours, and two of 75 mg. for eleven hours.

Result.—Complete cessation of the menses, with a marked improvement of general health followed.

Case 42 (53650)—*History.*—Mrs. M. L., aged 40, a healthy, normal person, had no menstrual disturbance until one year before the radium treatment, when the flow began to increase in duration and quantity, and a flooding spell occurred in May, 1916. When the patient was examined, June 1, 1916, she had a profuse, bloody, vaginal discharge. The uterus was about the size of a double fist, symmetrical and freely movable. There was no adnexa trouble. Fifty mg. of radium were applied, June 5, with eleven and one-half hours' exposure, and 75 mg., June 20, with eleven hours' exposure.

Result.—The uterus is now normal, and a complete cessation of the menses has followed.

Case 43 (65626)—*History.*—Mrs. M. G., aged 40, who had been married twenty years and had three children, was operated on for complete laceration. For the past year the menstruation had been irregular and profuse in quantity, and there had been continuous bleeding for the past eight months. The patient was anemic and very nervous, and had lost in weight. Three applications of radium were given, one of 75 mg. for eleven, and two of 50 mg. for ten and one-half hours.

Result.—There has been a suppression of the menses. Marked menopause symptoms were treated with hypodermic injections of corpus luteum.

Case 44 (65596)—*History.*—Mrs. K. K., aged 42, who had been married seventeen years, and had had four children, all living, the youngest of whom is aged 8, had been curetted twice, the last time two years ago. The flow temporarily improved after curettage, but reappeared, quite profuse. For the past few months, the patient had been bleeding continuously, passing large clots. Three applications of radium, each of 50 gm., with eleven hours' exposure, were given.

Result.—The condition was completely relieved.

Case 45 (70021)—*History.*—Mrs. B. L., the history of whose case is incomplete, began to have irregular menstruation ten years ago. For the past three or four months she had had flooding spells. She was curetted two years ago and operated on twice since then, but the flow continued. Two applications of radium were given, each of 50 mg., and ten hours' exposure.

Result.—The condition was completely relieved.

Case 46 (61565)—*History.*—Mrs. J. M., aged 39, who had had her last child four years ago, was well until two years ago, when she began bleeding excessively. Curettage gave temporary relief. For the past month she had had a continuous flow. She had lost in weight and was anemic. Six applications of radium were given: Aug. 8, 1917, 50 mg., twelve hours' exposure; August 15, 75 mg., twelve hours' exposure; September 3, 25 mg., eleven hours' exposure; November 27, 50 mg., eleven hours' exposure; Jan. 1, 1918, 50 mg., ten hours' exposure, and June 6, 50 mg., ten hours' exposure.

Result.—Complete relief followed.

Case 47 (53807)—*History.*—Mrs. B. V. M., aged 38, of whose case there is an incomplete history, had a miscarriage four years ago. One month later excessive bleeding started, lasting four days. Every month she bled excessively, suffering with pains in the right side, the back and lower extremities. Three applications of radium were given, two of 50 mg. and one of 75 mg., each with eleven hours' exposure.

Result.—The excessive flow was controlled and the patient now menstruates normally, the menstruation lasting six days.

Case 48 (58277)—*History.*—A woman, aged 30, suffered from profuse and prolonged menstruation. An appendectomy was performed and a cystic ovary and small polypus removed, Dec. 16, 1916. A practically continuous hemorrhage had persisted since the operation. Four treatments with radium, totaling 2,550 mg. hours, were given.

Result.—Suppression of the menses followed.

Case 49 (56051)—*History.*—The patient, aged 45, had always had profuse menstruation, lasting for five or six days. The last few years she had menstruated twice in a month. The flow was copious. The patient had been treated locally for a long period. Two treatments with radium, totaling 2,675 mg. hours, were given.

Result.—The condition was completely relieved.

Case 50 (56753)—*History.*—A woman, aged 35 years, had had flooding spells for several years, lasting five or six days. Blood appeared in large clots, and just previous to the radium treatment there was almost a continuous bloody discharge. The patient had been curetted twice, and her appendix had been removed. She had had two courses of deep, roentgen-ray therapy, which checked the flow for a year, but it reappeared in hemorrhage form. One treatment with radium, of 550 mg. hours, was given.

Result.—Complete stoppage of menstruation followed.

Case 51 (55804)—*History.*—A woman, aged 44, had been menstruating irregularly for the past year and a half. The flow was very profuse and returned every nineteen days, accompanied by pains in the back. One treatment with radium, of 865 mg. hours, was given.

Result.—Complete relief followed.

THE TREATMENT OF MYOMA UTERI WITH RADIUM *

JOHN G. CLARK, M.D.
PHILADELPHIA

Sufficient time has now elapsed since my associates and I began the treatment of myomas and myopathic hemorrhages of the uterus with radium to arrive at a just estimate of its therapeutic value. Within certain limitations we may, with positive assurance, from our observation of more than 150 cases, assume that, from the standpoint of efficiency, safety and morbidity, this remedy must supplant surgical intervention in these tumors and for the relief of intractable myopathic hemorrhages. Beyond these limitations, however, we are also convinced that surgery still has a dominant place in the treatment of properly selected cases. Our experience of the last four years in the use of radium has, therefore, marked out rather well-defined lines of procedure, on which we may advance with safety. In any field of endeavor the danger of any innovation is that too much may be expected of it; likewise, too much is often claimed for it.

In our first experience we limited the use of radium to women within the menopausal cycle, and we have only gradually, and to a very limited extent, worked outside of this physiologic boundary, for we are convinced that in young women heedless radiation may be quite as unfortunate in its results as were the early efforts of overenthusiastic or poorly balanced ovariotomists. Radium is quite as potent in its power to bring on a premature menopause, and it is quite as upsetting to the nervous equilibrium of a young woman, as the removal of the ovaries. Fifty mg. of radium applied for twenty-four hours within the uterus of a young woman will in many instances bring on an abrupt and serious menopause; and while in our series of cases one or two patients have received this dosage, it was given in our earlier experience, when the potentialities of radium were not fully realized and its dosage was yet within the period of experimental endeavor. We quickly learned that a moderately prolonged intra-uterine application was most hazardous and not to be repeated. As we view this question, three essentials are capital in the use of radium; first, an accurate diagnosis in all cases; second, the proper selection of cases; and third, the careful graduation of dosage, beginning when young women are being treated, with a minimum application and increasing the duration of application slightly if the first attempt fails to check the excessive flow.

In our study of results in women within the menopausal years, certain facts stand out in relief. Among the most obvious are these: The tumor must be uncomplicated with coincident inflammatory disease: it must be causing hemorrhage, and it should not be too large. In our cases, when pain, even without coincident evidences of inflammatory disturbance, has been present, it is seldom relieved even though the tumor largely disappears; and in other instances in which there was an old salpingitis, a flare-up of a quiescent process has occurred. In two cases a subsequent operation was necessary—in one a hysterectomy and in the other a vaginal puncture of a large pelvic abscess was necessary to relieve the patient. These two instances alone in our large series would not cast great discredit on this procedure, if all the other patients suffering with pain had been relieved of this symptom as the tumor decreased in size and menorrhagia ceased. Such, however, has not been the case; and we have, therefore, established a rigid rule that no patient suffering with pain lateral to the uterus is to be radiated. We choose an operation instead, for we can then ascertain the extent of the pathology and treat it conservatively or radically, according to the indications. In this connection we desire most emphatically to protest against the use of radium in the treatment of any acute or quiescent inflammatory case, whether associated with a myoma or standing alone. One of my esteemed colleagues, a radiologist, informs me that this point should be emphasized especially, for already an occasional enthusiast asserts that radium may be beneficial in the treatment of pyosalpinx. This degree of optimism is very dangerous, and cannot too quickly be discredited, for we have already observed its evil.

In keeping this remedy well within its proper bounds, its great value may be established without reflections on it; but through such a policy as that just referred to, its employment will be discredited. The proper selection of the tumor to be treated from the standpoint of size and symptomatology is also clearly necessary, for a therapeutic policy that covers all myomas regardless of structure is, as we view our experience, without justification. We have seldom used radium in a tumor larger than the size of a five months' pregnancy, and then only under very exceptional circumstances, such as in the presence of grave cardiac or renal complication or serious consitutional defects which plainly rendered any operation too dangerous. The rule which we generally follow is to confine this treatment to cases in which the tumors are the size of a three months' pregnancy or smaller. This policy is based on previous years of experience in the surgical treatment of myoma, which has established the great frequency of associated lesions in these large tumors, and we believe, therefore, that we serve a better end in recommending an operation in this class of cases than the application of radium.

One not infrequently finds in many cases a degree of anemia not accounted for by the loss of blood, and a complexion more like that of cachexia than occurs with an uncomplicated anemia; and furthermore, there is an asthenia of a toxic type which is not satisfactorily accounted for by a simple blood loss. Seldom is a malignant condition encountered, but not infrequently varying stages of degeneration of the tumors are discovered on macroscopic section marked by a grayish red or slaty discoloration of some of the tumors, indicating a partial gangrene, in others liquefaction necrosis, etc. Through the absorption of these necrotic or degenerating materials, serious inroads on the patient's constitution have occurred and a rapid healthful rebound follows a hysteromyomectomy. Based on these observations, we cannot look with favor on the conversion of these large tumors through radiation into retrogressive tissues, which through absorption may cause toxic symptoms. Under such conditions the patient may serve as the sarcophagus for her decadent tumor. Also, these large tumors are very frequently associated with, or through pressure have produced, other lesions, especially of the inflammatory

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class. Frequently pressure symptoms have forced the patient to consult the surgeon, and there may be no variation of the menses from the normal. In such cases the tumor may be a pure fibroid, largely of a dense hyaline or calcareous type, certainly not responsive to radiation.

For these, and still other reasons, therefore, we find no evidence thus far in our experience to convince us that the large tumors should not be removed by approved surgical methods. In no instance has there been so quick a decrease in the size of even the smaller tumors to justify us in believing that the larger tumors which are giving pressure symptoms will diminish sufficiently rapidly in even six months or a year to give satisfactory relief. We stand, therefore, on the general principle against radiation in tumors larger than a three months' pregnancy, and in only the exceptional case do we deviate from this rule.

Those who decry the use of radium in all myoma cases ring the changes on the dangers of sarcoma. Such objections have no basis in fact, for seldom, indeed, is sarcoma a degenerative or concomitant evil of myoma. If it were as common as is asserted by some of these alarmists, out of every series of 100 partial hysterectomies, as are usually performed by American surgeons, a definite percentage of recurrent sarcomas in the cervical stump should be encountered. In more than 1,000 hysterectomies performed in the gynecologic department of the University Hospital such a sequel has been observed but once. In a review of 816 myomas in our laboratory by my associate, Dr. Charles C. Norris, he finds only thirteen sarcomas, or less than 0.1 per cent., which were not diagnosed at the time of operation, only twenty-six such cases in all this series having been encountered. Based both on clinical and on laboratory conclusions, therefore, we deal with fears solely within the domain of fallacious supposition in discussing the dangers of sarcomatous changes in myomas and fibromas. Even were these fears jusified, there would still be no strong argument against the use of radium, since these tumors quickly react to this influence. It is not, therefore, the fear of sarcomatous degeneration which makes us slow to radiate large tumors, but it is because of the other objections just enumerated. To define our policy clearly, we would say that we radiate chiefly for one symptom, and that is hemorrhage. In myopathic changes in the uterus and in the smaller myomas causing excessive flow a safer or more certain means of relieving this symptom has not been found, for it acts with clocklike regularity, and we therefore consider a small myomatous uterus causing menorrhagia in a middle aged woman as no longer within the surgical domain. When radium is not available, the use of the roentgen ray in skilled hands may take its place. In the near future, therefore, we believe that the surgeon who operates in this type of cases will have a difficult task ahead of him in justifying his action.

SYMPTOMS ACCOMPANYING RADIATION

Under special headings may be enumerated some of the occasional symptoms accompanying radiation:

Nausea.—Frequently within from twenty-four to forty-eight hours after the intra-uterine application of radium the patient will experience considerable nausea, not, however, greater than that observed after the administration of one-fourth grain of morphin in the occasional case. As we always perform a dilatation and curettage under nitrous oxid anesthesia, with a preliminary one-fourth grain of morphin administered one hour before the anesthetization, we have often felt that there were about equal chances between the effects of the radium and the morphin in the production of the symptoms; for nausea and vomiting are the exception rather than the rule after radiation. In no case has this symptom been either alarming or persistent.

Pain.—This symptom is also a variable factor, and may be attributable to the curettage, which is performed in all of these cases for diagnostic assurance. When this symptom persists or is accompanied by fever, we fear the possibilities of an acute inflammatory attack or the exacerbation of a quiescent lesion. This complication has occurred but seldom. However, it has been noted in possibly twenty or thirty instances in our series, and we are inclined to adopt in the future the plan of merely dilating the cervix and inserting the radium in those cases of periodic menorrhagias following a cyclic menstrual type without intermenstrual spotting; for in no instance have we discovered a carcinoma of the fundus in any of these cases, notwithstanding a careful routine study of the curettings. In those cases, however, in which there is intermenstrual spotting, or in which there is continuous bleeding, curettage should never be omitted, for this is the court of final diagnostic resort. When this very suggestive symptom has been present, carcinoma of the fundus has occasionally been encountered and an immediate or subsequent hysterectomy has been performed. A simple hysterectomy carries so high a percentage of cures in this class of cases that we never trust to radium, but invariably choose the more radical surgical measure.

Leukorrhea.—The rule in all of our cases has been that a yellowish but never profuse leukorrhea will follow radiation for a short time—usually from three to six weeks. Hemorrhage likewise may not cease at once, although this is the rule. We warn our patients against apprehension if the flow does not cease at once, and usually tell them to expect no decided result under six weeks, although the great majority are relieved at once of excessive bleeding, but have a somewhat yellowish, sticky discharge for possibly six weeks, after which it ceases. In several instances a profuse leukorrhea has actually been cured by radiation.

Menopause.—The change of life in these cases varies in its phases, as the constitutional and temperamental characteristics of women vary. In this connection one might employ the lines of the comic opera librettist: "There are never two women alike, and never one woman alike twice." In the more marked grades of anemia we believe the climacteric change is more abrupt and attended with more pronounced symptoms. This may be explained on the theory that the hematogenous system has been working for weeks or months at a great speed in corpuscular generation, since the continuous loss of blood is so great that this excessive deficit must be remedied. A quick check on this great activity must in many instances jar the physiologic equilibrium and thus induce a more acute menopause. So far as we are able to judge, we believe that the menopause is somewhat more trying to the average woman under an abrupt cessation than when she drifts into this change more naturally. In estimating the possible objections to radiation this symptom may possibly be classed in this light, although it in no

way differs from the same sequel after a hysterectomy in which the ovaries are removed. In general, we find our patients very enthusiastic over their results, and count this possibly trying symptom as of light moment compared with their satisfaction over an escape from an operation.

FAILURE TO RELIEVE

In four cases we have failed to relieve patients sufficiently to satisfy them or ourselves, and we have subsequently resorted to a hysterectomy. Two patients have been operated on in other clinics. So far as we have observed, no disadvantage has occurred from the preliminary radiation, as all of the patients on whom an operation has been performed have recovered without complication.

TECHNIC OF APPLICATION

In our entire series of cases we have varied but little in our method of treatment. For women in the menopausal years, one extra-uterine application of 50 mg. of twenty-four hours' duration is made. Under gas the cervix is dilated and a simple curettage for diagnostic purposes is performed, followed by a light packing of the uterine cavity with a 5 per cent. solution of iodin momentarily before the radium is introduced. We enclose the platinum or silver radium container in a black rubber drainage tubing securely tied at each end. A 50 mg. tube is inserted into the fundal cavity to the top and left thus for twenty-four hours. When the cavity is 3½ inches or more in depth, we usually use 25 mg. tubes arranged in the rubber tubing tandem fashion, to insure a wider radiation of the uterine wall. After the radium is withdrawn, we usually keep the patient in bed three days, as after ordinary curettage, and at the end of five days she is discharged and permitted to resume her ordinary duties.

In women under 40 years of age we grade the dosage largely according to their years. As a rule, if the menorrhagia is excessive we may leave the tube in place twelve hours if the patient is over 35. In still younger women we never apply it more than six hours, choosing rather to make a reapplication several weeks later if the first fails. In this way the menopause will not be induced. There are several instances in our series in which normal menses have occurred after an interval of weeks or months, even when a twenty-four hour dosage has been applied; but as a rule the menopause is permanent.

RESULTS

In one phenomenal case, that of a woman aged 32, married ten years and sterile, who had suffered from severe menorrhagia which had reduced her hemoglobin below 35 per cent., the flow ceased quite abruptly and she passed through a rather severe menopausal period and yet became pregnant and went to term; but through a severe postpartum hemorrhage the poor woman lost her life. In many instances patients have passed through a typical climacterium, and the periods have returned and have then resumed a normal menstrual physiology. This phenomenon has been sufficiently frequent to make us believe that the radioactivity of the usual dosage is expended chiefly within the uterus and not on the ovaries. In considering the amount of radium employed in these cases, we feel that the smaller dosage, such as we have indicated, has given very satisfactory results, and, therefore, it is within the easy range of every well equipped hospital to have available at least 100 mg. of this substance for use in their clinical departments. It should, however, be placed within the jurisdiction of one capable clinician of the staff to advise as to its use. Certainly it is not a remedy for haphazard use, for it requires the training and judgment of a skilled specialist to advise as to when and how it should be applied.

ABSTRACT OF DISCUSSION

OF PAPERS OF DRS. S. M. D. CLARK AND JOHN G. CLARK

DR. HAROLD BAILEY, New York: In the radium treatment of cervical cancer there are two problems: The application of the radium to the cervix in such an amount that there will be a retrogression of the local lesion without the production of deep slough or fistula, and the radiation of the parametrium by such massive dosage that the necessary amount of ray intensity (whatever that may be) will reach all parts of the pelvic tissue involved. The first problem is comparatively simple from the point of physical conditions, for the cervical canal is approximately in the center of the involved part and offers an ideal location for an applicator in the shape of a capsule. This type of application will probably always be the chief or most important single factor in the treatment. Granting that a complete retrogression is produced in the cervix, then we are in the same position as if the cervix and uterus had been removed by a simple hysterectomy and the return of the disease is just as certain as if this operation had been done. With small amounts of radium the only way so far as I know, of producing distant effects in the parametrium, excluding rectal application, is by reapplication of the capsule to the same areas in the cervical canal. Experience through nearly two years of use of radium in this manner has convinced me that it is seldom effective and furthermore that it produces lesions which are quite important as regards the patient's comfort. The second problem is best solved by two types of accessory applications that require large amounts of radium, amounts in the magnitude of a gram. Properly protected these large doses may be placed for short periods in the posterior fornix at either side of the cervix and thus radiate the lower part of the broad ligament. Amounts of 1 gm. may be placed above the surface of the skin and over different areas in turn and thus conduct an additional radium intensity into the pelvic tissues. In this manner it is highly probable that sufficient radium intensity can be produced throughout the pelvis to affect unfavorably any cancer cells that may happen to be there. Unfortunately just the amount that will accomplish our purpose without producing an endarteritis that will some months in the future cause a sclerosis with stricture and fistula and other serious symptoms, must be arrived at by cautious experiment. Therefore, it is quite patent that the possessor of small amounts of radium must be satisfied at present to conduct palliative treatment of inoperable cancer and should not attempt to treat operable cancer. The preoperative treatment of cervical cancer with radium should consist (where only small amounts are available) in using the intracervical capsule for a considerable dose and then waiting three or four weeks before operating. Caution must be used in considering too favorably the temporary healing of the local lesion for the common history of these cases is that within the period of a year further cancerous development ensues. In cancer of the body of the uterus operation should be done following radiation. Under radium treatment small fibroids may retrogress so that their size causes no symptoms. Larger fibroids may diminish in size but there remains above the true pelvis a heavy sclerotic mass that is apt to cause symptoms from its weight alone. The bleeding in most of the cases may be checked entirely. Cessation of menstruation is probably caused by the lack of functional activity of the ovary and the endarteritis produced in the tumor itself. In selecting the cases it is necessary to rule out not only all those with abnormal conditions in the pelvis but also all very large or the pedunculated or adherent or submucous fibroids and also all those with large retrocervical nodules. There remain suitable for the

radium treatment all those that have some physical condition rendering operation inadvisable and also all small freely movable fibroids without any discernible complications. This last mentioned group should have the radium treatment as a tentative measure. The mortality from radium treatment of fibromyoma together with that of the undiagnosed and untreated complications may be higher than 1.5 to 2 per cent. Radium is particularly successful in the treatment of this class of cases. As in the fibroid group the bleeding does not cease usually unless the menstruation is stopped. Care must be used in selecting these cases. A thorough curettage should be done and all the scrapings examined. One piece may show adenomatoid membrane and a nearby section may show signs of beginning cancer. Another possibility that deserves consideration in the radium treatment of younger patients is that a partially ripe ovum may be so injured that on impregnation later abnormal development may occur.

Dr. Ernest C. Samuel, New Orleans: We have not attempted to radiate tumors that are large or rapidly growing, impacted in the pelvis, causing pain or pressure symptoms. We have done this only when they were of small size and in patients beyond 35 years of age. The tumors not causing hemorrhage have been left to the surgeon, except in probably one or two instances. I was glad to hear what Dr. Clark said concerning sarcoma being a bugbear in the matter of radium treatment. We have had some pain following the application of radium, but since we have ceased using morphin preliminarily to radium the nausea has been reduced at least 75 per cent. We have given up entirely the use of gas for the introduction of radium. Of the 125 patients treated three have come to operation. In one case there was no result whatever from very large doses frequently repeated. As Dr. Clark said, after very careful examination there was no evidence of malignancy found in the specimen. I have had three unhappy experiences with a lighting up of infection after radium was used. I cannot agree with Dr. Clark as to the menopause being a bit short. Our observation has been different. It seems to come on a little more slowly and not to produce the symptoms as fast as he has observed. In regard to malignancy, we are not using the very large dosage of which Dr. Bailey speaks. We have absolutely discarded it, using only the smallest dosage, and after three treatments, which I think is a little more than Dr. Clark gives, if there is no appreciable effect on the mass, we stop treatment entirely and tell the patient's family that nothing more can be expected of radium. Dr. Schmitz of Chicago has demonstrated that implanting the radium tube in the parametrium is of much value. It seems to offer much in the future care of these cases, especially in recurrences out in the parametrium and deep in the pelvis

Dr. A. H. Curtis, Chicago: Of the patients whom we have treated with radium we have available statistics from 229. Forty-six with uterine cancer have obtained some palliative relief. Of this number there has been very marked amelioration of the symptoms in fourteen. Up to the present we have had no patient in whom we anticipate that a permanent cure has been secured. The hemorrhage ceases, the discharge stops, the cervix almost invariably heals over; there is cessation of pain for several months, but eventually the patient succumbs to the disease. In the protection of the bladder and the rectum we have found that, instead of the use of the customary gauze pack, insertion of a rubber dam is very much more satisfactory. Because of its elasticity it can be inserted without distress; the parts are forced away from the carcinomatous tissue and we have absolutely no trouble from adhesive vaginitis. In cases in which it is desirable to use radium as a preliminary to operation I think it is well either to operate within the first twenty-four hours before inflammatory reaction has occurred, or to wait for two and a half or three weeks in order that an immunity may have been established from the inflammatory reaction following the application of radium. In the noncancerous group of cases, without doubt radium is of great therapeutic value. We are able to effect a cure in almost all cases where radium is indicated. We have found that the routine use of 1,200 mg. in small sized fibroids and with patients in the menopause there is a tendency to hot flushes which disturb an otherwise excellent result. On this account we are inclined to use a smaller dosage and have recently employed 1,000 mg. or less. In severe hemorrhage in women of younger age, the so-called idiopathic hemorrhage, even a smaller dosage will suffice. In all of these nonmalignant cases there is apt to be bleeding for several weeks, sometimes for a couple of months, but almost always a cure is assured if we are patient. Another complication is that of a very profuse watery discharge, persisting oftentimes for three or four months; but I know of no case in which it has not spontaneously ceased. I am optimistic concerning the use of radium in intractable leukorrhea of cervical origin. The cervix is open to infection from below. As a result there is marked hypertrophy of the cervical tissues, which are permeated with infection by all sorts of organisms. Fifty milligrams of radium are inserted in the cervix as high as the internal os and left for twelve to sixteen hours. Its use is sometimes necessary again after two months. But finally the glands are destroyed and the infection ceases. The ultimate results are extremely gratifying.

Dr. Edward H. Richardson, Baltimore: I am glad to note that the general tone of these papers has been conservative. There is no longer any doubt about the superiority of radium over other methods of treating certain cases of myoma and I believe the specific indications for its use will soon be defined accurately through the splendid work now being carried on in this field by those possessing this agent. In general, I agree with the limitations as outlined by Dr. John G. Clark. There is one group to be kept in mind, however, which he may have mentioned. This is illustrated by a case of a myomatus uterus not larger than a four months pregnancy in which I advised operation. The ovaries could not be palpated prior to laparotomy and when they were exposed, the left one was found to be moderately enlarged from cystic degeneration while at one point on its surface there was a papillomatous outgrowth, one and one-half centimeters in diameter, which appeared to be carcinomatous in nature. One must be careful to eliminate such early cases of carcinoma of the ovaries as a complication of myoma before advising radium, because, if I am informed correctly, it has been the uniform experience of radiologists that malignant growths of the ovaries are not amenable to this form of therapy. With reference to the treatment of carcinoma of the cervix and of the body of the uterus by radium, my observations have been limited to a small series of cases, all either hopelessly inoperable or instances of intrapelvic recurrence. Under such circumstances a cure could not reasonably be expected, but in all of them the rate of growth seemed to have been materially retarded and in other respects, too, its superiority as a palliative measure in these hopeless cases was convincingly shown. It is quite possible that further improvement in the technical methods of radiotherapy may yet reward by brilliant achievement the efforts of those now courageously working in this discouraging field. In the meantime they should receive the unstinted cooperation and encouragement of the profession.

Dr. LeRoy Broun, New York: It would be a great mistake to allow the impression to go out from this meeting that we may indiscriminately make use of radium or the roentgen ray in the treatment of fibroid tumors, and I am glad of this opportunity to accentuate the limitations placed on the treatment of fibroid tumors as Dr. Clark of Philadelphia has done. He clearly brings out the point that the essential factor is a positive diagnosis that there are no complications and the other that of hemorrhage. The presence of pain indicates that some intercurrent pathologic condition exists, such as associated disease of the ovaries and tubes with adhesions or changes in the tumor growth. In 1,760 consecutive cases of fibroid tumors in which operation was done, the following changes had taken place in the tumors: In ninety cases there were necrotic changes; in twenty-five cases there was calcareous degeneration and in twenty-five cases there was malignant disease of the fundus—not of the cervix. In others words, in 8 per cent. of the fibroid tumors conditions existed in which radium should not be used and in which, as a rule, no knowledge of such changes could be diagnosed prior to the

operation. There were a number of ovarian complications, 3 per cent. contraindicating the use of radium. These included ovarian cysts, dermoids and malignant disease. In 7 per cent. there was an infectious salpingitis, not salpingitis the result of increased circulation associated with fibroid tumors. This is where the danger arises in the use of radium—in our inability to make a positive diagnosis and to exclude the intercurrent pathologic condition. In a clear case, however, with absence of coincident pathologic conditions, or of degenerative changes in the fibroid tumor growth, radium is unquestionably of the greatest possible assistance. By it we can control hemorrhagic symptoms in uncomplicated fibroids and save the patient from a mutilating operation. I am glad to place this emphasis on the limitations in the use of radium which Dr. Clark has brought out.

DR. JOHN OSBORN POLAK, Brooklyn: Diagnosis is the keynote. All have defined the class of cases in which radium should be used, but they have not shown us how to make this diagnosis. Dr. Clark of New Orleans says they have discarded the use of morphin and of anesthesia in the introduction of the radium, but he does not tell us how he makes a definite diagnosis as to the absence of inflammatory adnexal conditions without the use of anesthesia. Of course, histories are almost always reliable, but errors occur in the best regulated hospital. We recently had two cases in which we used radium; a very active reaction resulted. Both tubes and ovaries had been removed for inflammatory conditions. The operating surgeon had left a large metritic uterus which was causing hemorrhage. Both these women were suffering from diabetic trouble and operative intervention was inadvisable. Both patients were cured with radium but the introduction of radium into these uteri caused the most active inflammatory reaction in the parametrium and in the peritoneum. Our own experience with radium has been limited to these cases of enteritis or subinvolution near the menopause with hemorrhage. We have had seventy-six cases treated for hemorrhage with absolute cure of the bleeding in all of the cases. Three patients have had to have repeated exposures. There has been only one case of a young girl in which radium was used for the control of hemorrhage. This case was treated by repeated small applications of radium with a most satisfactory result. I think it is a mistake for us to give the impression that operation for fibroids is to be eliminated. In watching the cases of other men in which large doses of radium have been used for the control of tumors I have been very much interested in seeing that a number of these cases had subsequently to be operated because of pressure changes and lack of diminution in size. The hemorrhage, however, in all cases in which I have seen radium used and in all the cases in which we have used it ourselves, has been absolutely controlled.

DR. HENRY SCHMITZ, Chicago: We have endeavored to find an explanation of the fact that some myomas disappear following radium application while others do not. In the latter instance the microscopic sections invariably show the presence of numerous atrophic fibroblasts and an abundance of highly differentiated fibrous tissue. In myoma uteri the dosage has been reduced greatly in the last two years in our work and we now deem a single application of 25 to 35 mg. for twenty hours sufficient to bring about amenorrhea. If the patient fails to respond to one such application we may repeat the dose after three or four months, when the desired result will be obtained. Such a careful plan of treatment prevents the later appearance of profuse leukorrhea of which so many patients complain and which at times seems to be quite persistent, lasting not only three to six months, but sometimes even a year. Concerning the use of radium in carcinoma of the uterus we must always remember that if it did nothing else than give relief it is preferable to the cautery in inoperable cases. In the hemorrhagic myopathies the results of radium therapy have been good, provided the causative factor has been corrected first. It is of special importance to rule out malignancy. Of twenty-three inoperable cases of cancer treated in 1914 three patients are living and well today, having had no recurrence. The demonstrable reduction in the size of the tumor of a kind not to be attributed to the natural processes of evolution of that tumor or its associated lesions is the one essential feature to be observed in speaking of a curative action of any agent. On the other hand, if such a therapeutic measure relieves symptoms such as hemorrhage and discharge and brings about local healing, the agent is only a palliative one. If we consider the results of radium therapy from this point of view we shall avoid many misunderstandings or wrong conclusions.

DR. SAMUEL M. D. CLARK, New Orleans: If the case histories are studied it will be seen that most of the patients had previously been operated on in some fashion. As to the fibromyomas, I was interested to hear of the percentage of adnexal inflammation being so low, not over 30 per cent. In the colored women, among whom myomas are common, adnexal inflammation is found in 85 per cent., leaving only 15 per cent. suitable for radium treatment. It is to be regretted that there was not more discussion on the control of menstrual bleeding in young women without producing suppression. We need more light on this phase of the subject.

DR. JOHN G. CLARK, Philadelphia: So far as my attitude toward radium is concerned, therapeutically it is at most a mere handmaid of surgery. As I have stated in my paper, there are cases of fibroid which should not be treated by radium, thus reducing the total number of cases to which radium is applicable to a smaller proportion than those submitted to surgery. Particular stress should be laid on the necessity for all of these cases to have the best diagnostic advice before the determination to use radium or the roentgen ray is arrived at. Certainly, it is not within the province of the roentgenologists to pass on this phase of the question. Unless this decision is carefully controlled, serious opprobrium will be cast on a very valuable remedy. Dr. Samuels believes that his patients have not suffered as much with acute menopausal symptoms as ours have. Possibly this may be due to the fact that he has used a smaller dosage. At least, this is the only way in which I can explain the apparent difference in our results. So far as the question of leukorrhea is concerned his patients appear to have a slight leukorrhea but like our series, this is never annoying. Seldom are they troubled with this slight discharge for more than six weeks, and in many instances not at all. A very gratifying sequel in several cases of chronic leukorrhea has been a cure by the use of radium. The one point on which special stress should be laid is that radium does not take the place of surgery, except in a limited number of cases. Every surgeon here knows how reluctantly he advises a hysterectomy in a woman in the menopausal years who is suffering with mere myopathic hemorrhage or from a very small fibroid, as the gravity of the operation is greatly out of proportion to the lesion. These are the cases par excellence for the use of radium and they should never be submitted to operation.

Health Centers.—A health center is a place where people may come to learn how to keep well. It is not too expensive for any community with a population of 10,000. A health center is simplicity itself, a single room, if no more is available, in the central part of the town, where the public health nurse and doctor in attendance can give advice to people on matters of health. This health center should be conducted by the board of health of the municipality, as it is really a municipal duty to see that the health of the citizen is preserved. Very often, however, it is more easily started by some private philanthropic agency; the Visiting Nurse Association, for example, could carry it along as a demonstration until it is finally taken over by the municipality. Such a health center need not be confined to any particular age group. Prenatal instruction can be given there; the infant can be supervised there; it can serve also as a conference center for the child of preschool age, the schoolchild, and the child in industry, and, for that matter, the adult. Every community, or group of communities, should have one.—*The Commonwealth* **6**:120 (May-June), 1919.

TREATMENT OF EXTRA-UTERINE PREGNANCY AFTER THE FIFTH MONTH *

ALFRED C. BECK, M.D.
BROOKLYN

The incentive for this study was a case of full term extra-uterine pregnancy which I had the good fortune to treat in the Long Island College Hospital last fall:

Mrs. C. C., aged 32, primipara, married nine years, menstruated regularly every twenty-eight days. Her last menstruation began Jan. 18, 1918, and continued for three days. No bloody vaginal discharge was noticed at any time during the pregnancy prior to the day before admission to the hospital. In the second month, the patient suffered from pain in the right lower quadrant of the abdomen. Occasionally, this was severe enough to necessitate her remaining in bed, but at no time required the services of her physician. After about two weeks, the pain disappeared, and she resumed her usual household duties. No further symptoms were observed until the last month, when the fetal movements became very active and painful. Oct. 4, 1918, intermittent pains and a bloody vaginal discharge led the patient to believe that she was in labor, and a midwife was called. After two days of suffering, the patient was brought to the hospital. On admission, examination revealed a marked distention of the abdomen. The fetal head was felt very close to the examining fingers in the left lower quadrant. Neither contractions nor the round ligaments could be palpated. Percussion revealed an irregular area of tympany, which extended from the ensiform to slightly below the umbilicus. The fetal heart was heard on the right side below the umbilicus. From these atypical abdominal findings, the fetus was thought to be free in the abdomen.

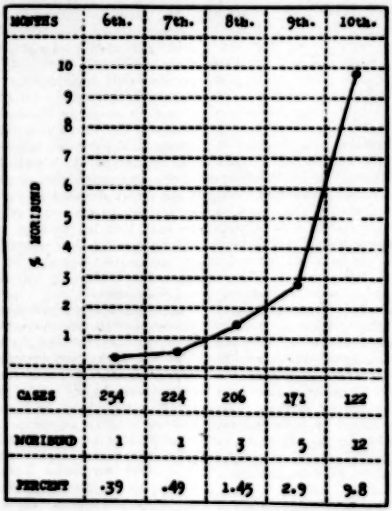

Chart 1.—Cases in which patients were moribund at the time of operation.

Because of the extreme distention, it was deemed advisable to postpone operation until after an attempt was made to relieve this complication, as the patient was otherwise in good condition. Gastric lavage and colonic irrigations were used to good advantage, and on the following morning, Oct. 8, 1918, the patient was prepared for a laparotomy.

Vaginal examination under anesthesia disclosed a soft thick cervix, which admitted two fingers easily. The uterus was distinctly felt on the right side and was about the size of a four months' pregnancy. Digital exploration of its cavity revealed it to be empty, and the walls were found to be free from rupture.

The abdomen was opened through a midline incision which extended from the symphysis to the umbilicus. After the sac had been incised, a well developed child was extracted. The placenta was found to be widely attached to the right broad ligament and sigmoid and extended anteriorly along the parietal peritoneum almost to the midline. By the use of clamps and ligatures the placenta was removed. A vigorous hemorrhage now took place from the friable areas through which some of the ligatures had torn. Pressure was made over the abdominal aorta, thus partially arresting the flow of blood, while the bleeding points were secured with three clamps. These were surrounded by a Mikulicz drain, and the wound was closed, except in its lower angle, through which the drain and clamps protruded. The patient was returned to her bed in good condition. The duration of the operation was forty minutes.

The clamps were removed on the third day, and the drain was started on the following morning. The temperature rose to 100.6 on the second day following the operation, after which it remained below 100 until October 20, when the wound suppurated. A febrile convalescence continued for twenty-four days, during which the highest temperature was 102.4. The patient was allowed out of bed, Nov. 23, 1918, and was discharged from the hospital in good condition three weeks later.

She has returned several times during the past five months to the post partum clinic, where examinations have shown a complete recovery.

The child was 50 cm. long and weighed 3,450 gm. at birth. No malformations were noted. It was placed under the supervision of Dr. Watton of the department of pediatrics, who recommended artificial feeding because of the mother's condition. On the eighth day, suppurative parotitis developed. Following recovery from this condition, the child did well and weighed 15 pounds and 10 ounces when last seen, June 10, 1919.

RECORDS OF TWO HUNDRED AND SIXTY-TWO CASES

The treatment of this condition must be learned from a statistical analysis of the results in a large series of cases, since the experience of individual operators is so limited that their conclusions are less satisfactory than the deductions which one might make from a collective study of the cases reported in the literature. A careful search of the literature, as well as replies to a questionnaire which was sent to over 200 obstetricians, revealed only 262 cases of extra-uterine pregnancy between the years 1809 and 1919 in which operations were performed after the fifth month, with a living fetus.

MATERNAL MORTALITY

Table 1 shows the maternal mortality following operative treatment.

A. Prior to 1890, that is, before the days of asepsis, fifty patients were operated on for this condition, and thirty-four died, a mortality of 68 per cent.

B. During the following ten years, 35.3 per cent. of the patients died. As suggested by Harris, this improvement probably was due to the influence of the teaching of asepsis.

C. The mortality was further lowered in the succeeding ten years to 21.9 per cent. of ninety-one cases, as a result of the advances made in the technic of abdominal surgery.

D. Only twenty-two case reports were found in the literature of the past nine years, owing to the fact that the war

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

greatly interfered with the collection of medical data. Of these twenty-two patients, four died, a mortality of 18.1 per cent.

E. The mortality for the entire series of 262 cases was 35.8 per cent.

OPERATIVE TREATMENT

In spite of this high death rate (35.8 per cent.), the treatment of advanced extra-uterine pregnancy always

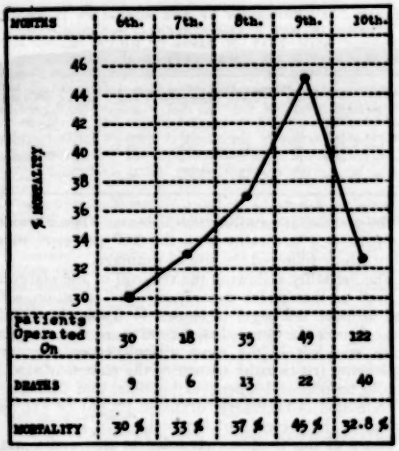

Chart 2.—Operative mortality at different periods of gestation.

should be operative, as noninterference gives even worse results.

Time to Operate.—Our decision as to the proper time to operate depends on three factors:

1. The danger to the mother of waiting for a viable child.
2. The operative risk at various periods of gestation.
3. The best time to interfere in the interest of the child.

DANGER TO THE MOTHER OF WAITING FOR A VIABLE CHILD

The danger to the mother of waiting for a viable child is shown in Chart 1. From a period of relative

TABLE 1.—MATERNAL MORTALITY

Period	Cases, No.	Deaths, No.	Mortality, per Cent.
A. 1800 to 1880	50	34	68.0
B. 1880 to 1900	99	35	35.3
C. 1900 to 1910	91	20	21.9
D. 1910 to 1919	22	4	18.1
E. 1800 to 1919	262	94	35.8

quiescence during the sixth and seventh months, the maternal risk gradually but slightly increases in the eighth and ninth, to become a prominent factor in the tenth month. Twelve of the 122 patients who reached the last month were moribund before the operation was performed. Of these moribund cases, only two were noted during the first two weeks of this five-month period, while ten occurred during the thirty-ninth and the fortieth weeks. Were this growing danger in the late stage of pregnancy the only factor to be considered in determining the time to operate, we might conclude that:

1. The best time to operate is during the sixth or the seventh month.
2. The added risk in waiting for a well developed child is slight up to the thirty-ninth week.
3. The danger of a catastrophe is sufficiently great in the last two weeks to warrant interference before this period is reached.

OPERATIVE RISK AT THE VARIOUS PERIODS OF GESTATION

The operative risk at the various periods of gestation is shown in Chart 2. The danger from the operation itself increases as pregnancy advances, until the last month is reached, when it is less than at any previous time. An analysis of all of the deaths shows the apparent reason for this diminished risk during the tenth month to be a lessened tendency toward hemorrhage at that time. After the thirty-eighth week, 36.8 per cent. of the deaths were due to hemorrhage, while almost twice as large a proportion, 65.3 per cent., resulted from this cause when the operation was performed before the last two weeks.

By adding the moribund cases in Chart 1 to the operative deaths in Chart 2, the maternal mortality is found to be 30 per cent. for the sixth month, 33 per cent. for the seventh, 37 per cent. for the eighth, 45 per cent. for the ninth and 32.8 per cent. for the tenth. Chart 3 is a graphic representation of these figures, and illustrates the fact that, even though almost 10 per cent. of the patients operated on during the last month were moribund before the operation, the gross maternal mortality for the tenth month is almost as low as in the sixth, and lower than in the intervening months.

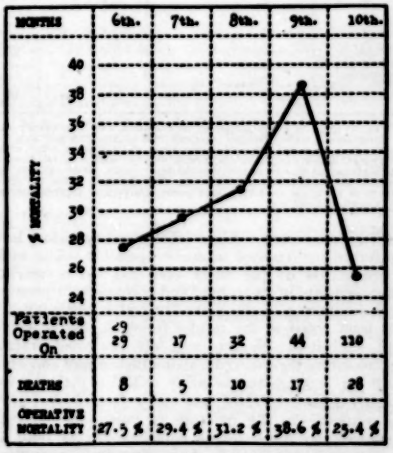

Chart 3.—Mortality at different periods of gestation.

BEST TIME TO INTERFERE IN THE INTEREST OF THE CHILD

The most suitable period for intervention in the interest of the child is shown in Table 2, which gives the duration of life of the infants born at different periods. These figures are very conservative, as many of the children reported as living at the end of from two to four weeks undoubtedly lived longer. Since

56.6 per cent. of the sixty infants born at from thirty-six to thirty-eight weeks survived one month, while only 47.5 per cent. of the eighty born in the thirty-ninth and fortieth weeks lived the same length of time, it would seem that the safest time to operate in the interest of the child is in the thirty-eighth week.

If the series of cases is sufficiently large to permit us to draw conclusions we may infer that:

1. The best time to operate is in the thirty-eighth week.
2. We are justified in waiting for this period of election, provided the patient is kept under observation.
3. This plan will best conserve the interests of both mother and child.

OPERATIVE TECHNIC

The difficulties which one meets in operating in these cases are usually encountered in the handling of the placenta. Its removal frequently has resulted in uncontrollable hemorrhage. The opposite procedure, its retention within the abdomen, is said to have been responsible for many cases of fatal sepsis. Table 3 gives a comparison of the results obtained by each method.

Before asepsis was generally practiced, the customary routine was to leave the placenta and drain

TABLE 2.—INFANT MORTALITY*

Period of Gestation, Weeks	Time of Infants' Survival: 1 day	2 days	1 Week	2 Weeks	3 Weeks	1 Month	1 Year	Time Unknown
40	31	2	2	2	2	10	25	10
39	2	..	..	..	..	2	1	..
38	2	4	..	..	1	4	12	..
37	4	1	..	..	..	1	2	1
36	12	..	..	1	1	10	5	3
35	6	..	..	..	..	1	..	..
34	1	..	1	..	..	1	..	1
33	3	..	..	..	1	1	1	..
32	9	1	..	..	1	1	..	..
31	2	..	..	..	..	..	..	..
30	17	1	..	..	..	1	2	..
29	2	..	..	..	..	..	..	..
28	5	1	..	..	1	..	..	..
20 to 27 incl.	27	1	..	..	..	..	..	1
Unknown	2	..	1	..	2	..	1	2
	135	11	4	4	9	32	49	18

* In 202 cases, in which the period of gestation was from twenty-eight to forty weeks, eighty infants survived one month, 39.6 per cent. In eighty cases, in which the period was from thirty-nine to forty weeks, thirty-eight infants survived one month, 47.5 per cent. In 140 cases, in which the period was from thirty-six to forty weeks, seventy-two infants survived one month, 51.4 per cent. In sixty cases, in which the period was from thirty-six to thirty-eight weeks, thirty-four infants survived one month, 56.6 per cent.

until it came away. Since 1890, most operators have preferred its removal whenever possible. The more frequent use of the latter plan has led to marked improvements in its technic and a consequent progressive diminution in the mortality, while little change has been noted in the results following marsupialization. When the placenta was left, the usual practice was to suture the sac to the abdominal wound and drain until its contents came away. These patients frequently became infected, and many died of sepsis. As the removal of the placenta is impossible in some instances, our results might be bettered if we used the modern surgical principle of avoiding drainage in these cases. We leave blood clots and placental tissue in the abdomen without drainage when we operate on earlier extra-uterine pregnancies. Would it not be well to follow the same routine when it is impossible to remove the placenta in the advanced cases?

With this suggestion in mind, I placed three fifths of a 500-gram placenta, removed by cesarean section, in the abdomen of a dog. The animal promptly recovered. Two months later its abdomen was reopened, and no trace of the placenta could be found. Absorption takes place under similar conditions in the human being, as has been demonstrated by eight of the cases included in this analysis. The placenta was left to be absorbed in the abdomen in twelve patients. Four of these died, a mortality of 33.3 per cent. In two of the fatal cases, death occurred from sepsis on the second and fourth days and, in all probability, was independent

TABLE 3.—A COMPARISON OF THE MORTALITY IN THOSE CASES IN WHICH THE PLACENTA WAS REMOVED WITH THAT IN CASES IN WHICH IT WAS LEFT

	Period	Placenta Removed: Cases, No.	Deaths, No.	Mortality, per Cent.	Placenta Left: Cases, No.	Deaths, No.	Mortality, per Cent.
A.	1890 to 1899	15	4	26.6	33	28	84.9
B.	1900 to 1909	69	17	28.3	38	17	47.7
C.	1900 to 1909	66	11	16.6	29	9	34.7
D.	1910 to 1919	18	2	11.1	4	2	50.0
E.	1890 to 1919	159	34	21.3	98	55	56.7

of the method of handling the placenta. These results compare very favorably with the 38.7 per cent. mortality which followed the use of drainage.

The mortality following the removal of the placenta, as well as that which accompanies its retention with and without drainage, is shown in Table 4. While these figures are somewhat deceptive, in that the placenta was left in the most difficult cases, they are sufficiently trustworthy to justify the statement that it should be removed whenever possible, and that when its retention is necessary, drainage should be avoided except in the presence of hemorrhage or infection.

Many of the fatalities recorded in this series were due to the fact that the operators had no definite plan of treating the placenta other than the idea that it should be removed. Usually the child was quickly extracted, and the removal of the placenta immediately attempted. Not infrequently an alarming hemorrhage necessitated the abandonment of all desire to remove this troublesome structure, and tampons were employed to stop the bleeding, the surgeon considering himself fortunate if the patient was alive at the end of the operation. As no one method is satisfactory for all cases, the surgeon should be familiar with the indications for, and contraindications to, each of the foregoing procedures. If a careful exploration is made before attempting any one of them, the most suitable plan for each case will be adopted before it has been made hopeless by the use of a faulty routine.

TABLE 4.—OPERATIVE MORTALITY OF THE DIFFERENT PROCEDURES IN CASES OF EXTRA-UTERINE PREGNANCY FROM 1890 TO 1919

Procedure Employed	Cases, No.	Deaths, No.	Mortality, Per Cent.
Placenta removed	137	23	16.7
Placenta left to be absorbed	12	4	33.3
Placenta left (wound drained) until it came away	52	22	38.7

OUTLINE OF AN OPERATIVE ROUTINE

The following outline of an operative routine has been suggested by the study of these cases:

1. There should be a preliminary preparation for the control of hemorrhage and the treatment of the acute anemia which may follow. This should include sequestration of the extremities, to permit of autotransfusion. A donor whose blood has been previously tested should be at hand. An

assistant should be instructed in the technic of controlling hemorrhage by compression of the abdominal aorta.

2. On opening the abdomen, care should be used to avoid incising the placenta, as hemorrhage from this source may prove troublesome during the operation and, in those cases in which the placenta must be left, may necessitate the use of a tampon.

3. If possible, a careful exploration of the abdomen should be made before the sac is incised.

4. The extraction of the child should be as gentle as possible to avoid disturbance of the placental insertion.

5. As the handling of the placenta is the most formidable part of the operation, a second careful exploration should be made, if necessary, before deciding on the procedure to be employed.

6. Since the usual mechanism of controlling hemorrhage from the placental site is not followed when the pregnancy is extra-uterine, the vessels supplying this region should be ligated before the placenta is disturbed. Whenever this blood supply is accessible, the placenta should be removed.

7. The conditions which favor the removal of the placenta are:

(*a*) Its attachment by a pedicle which can be ligated.

(*b*) Easy exposure of the ovarian and uterine extremities of its blood supply.

(*c*) Easy exposure of the ovarian extremity of its blood supply on the side involved, and sufficient accessibility of the uterus to permit of hysterectomy from the opposite side, thus effecting a ligation of the uterine end of the placental supply.

8. After the removal of the placenta, the abdomen should be closed without drainage.

9. If the insertion of the placenta is such that preliminary control of its blood supply is impossible, its removal is contraindicated and great care should be exercised to avoid disturbing its attachment.

10. Under such circumstances, two plans of treatment are available:

(*a*) Closure of the abdomen without drainage, leaving the placenta to be absorbed.

(*b*) Drainage by the use of a Mikulicz tampon, after having sutured the sac to the margin of the wound.

11. The first of these procedures deserves employment whenever the preceding manipulations have not caused hemorrhage, and when infection is not present.

12. If the placenta is cut as the abdomen is entered, the hemorrhage may be arrested by the use of clamps and mass ligation of the cut surface, thus permitting its retention without drainage.

13. The retained placenta ultimately will be absorbed. While waiting for absorption there is a slight risk of secondary hemorrhage and infection from the adjacent intestines.

14. These complications will necessitate a second operation. Should suppuration take place, drainage may be obtained through the vagina.

15. The second method, marsupialization, is applicable to those cases in which the removal of the placenta is contraindicated and the presence of infection or hemorrhage from the placental site necessitates the use of a tampon.

16. The continuous use of drainage predisposes to peritonitis, from which a rather large percentage of patients died in former times, when this procedure was the one of choice.

CONCLUSIONS

1. Because of the high mortality connected with advanced extra-uterine pregnancy and the infrequent occurrence of this condition, every case should be reported.

2. The relatively large number of children that survived operation does not justify a disregard of the interests of the child.

3. The actual operative risk is less during the last month than at any other time.

4. There is very little added risk in delaying the operation until the thirty-eighth week if the patient is kept under observation.

5. Interference at the thirty-eighth week offers the best opportunity for the survival of the child.

6. Preliminary preparation for the treatment of hemorrhage should precede operation.

7. Before attacking the placenta, a careful exploration should be made to determine the proper procedure to be employed.

8. Removal of the placenta gives the best results.

9. The conditions which favor removal of the placenta are:

(*a*) Its attachment by a pedicle which can be ligated.

(*b*) Easy exposure of the ovarian and uterine extremities of its blood supply.

(*c*) Easy exposure of the ovarian extremity of its blood supply on the side involved, and sufficient accessibility of the uterus to permit of hysterectomy from the opposite side, thus effecting a ligation of the uterine end of the placental supply.

10. Preliminary ligation of the vessels supplying the placental site should precede all attempts at removal.

11. When preliminary control of these vessels is impossible, the placenta should be left in the abdomen.

12. Closure of the abdomen without drainage is indicated when hemorrhage and infection are absent, even though the placenta is not removed.

13. The retained placenta will ultimately be absorbed.

14. A slight danger of secondary hemorrhage exists, and infection from the adjacent intestines may occasionally occur before absorption is complete.

15. These complications will necessitate a second operation. If suppuration takes place, drainage may be obtained through the vagina.

16. Marsupialization should be limited to those cases in which the removal of the placenta is contraindicated and the presence of infection requires drainage, or in which hemorrhage necessitates the use of a tampon.

17. The continuous use of drainage invites infection in these cases, as is shown by the results obtained when this procedure was the one of choice.

200 Hicks Street.

Eggs in Liquid Form.—During recent years the export from China of eggs in liquid form, preserved with boric acid, has developed very large proportions. Prior to the war relatively small quantities of this material were imported into England, the bulk of it going to Germany. The small quantities imported were used principally for industrial purposes, such as leather dressing, and to a limited extent for confectionery. After the outbreak of the war large consignments arrived at certain British ports as cargoes in prize ships, and since then large quantities have been imported in the ordinary course of trade. These products occasionally arrive in the form of whole egg mixed, but usually the egg yolk and egg albumin are sent separately. Samples of yolk taken from consignments arriving in the city of London were examined by the city analyst and found to contain boric acid in amounts varying from 1.35 to 2.08 per cent. When boric acid is relied on alone for preservative purposes the amount aimed at appears to be 2 per cent. Sometimes, however, common salt up to 10 per cent. is used with a smaller amount of boric acid. It is contended that these large amounts are necessary for effective preservation owing to the length of the voyage and the passage through the tropics.—*Medical Officer* **21**:203 (June 14), 1919.

MISTAKES IN DIAGNOSIS REVEALED THROUGH THOROUGH EXAMINATION *

J. RAWSON PENNINGTON, M.D.
CHICAGO

Today the patient is demanding a more thorough examination than formerly. He is no longer satisfied with having his tongue inspected and being given a recipe for a box of pills. He demands an examination of his urine, blood, blood pressure, diet, etc. When he feels sick and comes to us for help, he expects us to examine his complaint and take an inventory of his general condition. A record of the findings must be kept. The business man keeps his; we should keep ours.

Early last year Mocquot,[1] the Paris surgeon, gave the details of a case showing the importance of such examinations: A soldier sustained a shell wound of the knee, which was treated by excision of the tract and cleansing, and—as the fluid from the joint was negative bacteriologically—by complete closure. Signs of infection developed on the fifth day, despite punctures and injections of ether; suppuration increased, and, in a few days, resembled furunculosis. The joint-fluid now gave a growth of *S. aureus*, and the man said he had often had crops of furuncles. Though other symptoms were absent, diabetes was thought of; but the urine contained no sugar. Hyperglycemia was next in mind, and nearly 3 gm. per liter was found in the blood. Sodium bicarbonate was now given with auto-vaccines, and after the fourth day improvement began. In six weeks the man was evacuated, completely cured of his hyperglycemia, and with the functions of the knee practically normal.

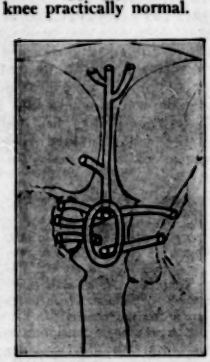

Fig. 1 (Case 1). — Diagrammatic: various rectal fistulas and their internal and external openings.

Fig. 2 (Case 1).—Appearance of the wound shown in Figure 1 eight months after the operation.

REPORT OF CASES

Case 1.—Mr. W., aged 40, came to my clinic at the Illinois Post-Graduate School in March, 1916. He had pain and a constant discharge of pus from an ischiorectal abscess which, though opened in July, 1912, had never healed. As the examination revealed a profuse discharge of pus, fistulous openings, perianal infection and decided tenderness over the sacrum, I advised operation, but it was declined.

In April, the patient was again operated on by another and eminent surgeon. A year later Dr. M. Nuta brought him to my office, having discovered a large pocket of pus over the sacrum. This I drained, finding, as surmised at the former examination, necrosis of the sacrum and a sinus into the rectum posteriorly. There were five other fistulas into the rectum, and one into the anal canal (Fig. 1).

Later on, I chiseled away the diseased bone and incised the fistulous tract extending over the sacrum and the coccyx to within about 1 inch of the rectum. The remaining portion of this and the other fistulous tracts were then enlarged and a seton passed through each. All the tracts except one, which is lined with epithelium and not discharging or giving any trouble, are closed. As the sphincters were not divided, the contour and function of the anus are preserved, and the patient has recovered much of the control lost as a result of the former operations (Fig. 2).

Fig. 3 (Case 2).—Division of rectovaginal septum. Patient has no control whatever over pus and bowel contents.

This report is submitted because the surgeons who had previously operated on the man—"stumbled," as Saint James[2] says—as to the primary cause of the trouble: diseased sacrum.

Case 2.—Mrs. E. M., aged 35, had had syphilitic stricture of the rectum for three years, and was operated on for a rectovaginal fistula in June, 1917. The wound did not heal and was followed by incontinence of feces and pus (Fig. 3).

I saw her first in October, 1917, and made a left inguinal colostomy the next month. A year later the rectum was removed by the abdominoperineal route. A short segment of the friable and syphilitic colon, distal to the colostomy, was closed at the distal end, but not removed on account of the patient's condition. Excrement passed into this segment from the colostomy opening. The reenforced purse string gave way, and the feces and pus escaped into the abdomen out through the perineal incision, and a fistulous tract in the posterior vaginal wall (Fig. 4). The patient had periodic attacks of pain in the region of the stomach, which, because of the history, were diagnosed by myself and others as "gastric crises." Later, I discovered that the "crises" were caused by the accumulation of feces in the perineal incision and the vaginal fistula, and that the pain ceased immediately on the removal of the segment of colon that had opened.

I report this case because of the "stomach pain," its cause, and my error as to the etiology.

Case 3.—Mrs. H., aged 51, was referred to my clinic at the Illinois Post-Graduate School by Dr. Wunderlick, in September, 1916, because of constipation. She had been treated for ulcer of the stomach for the past year and was

* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Mocquot, P.: Presse méd. **26** (Feb. 4) 1918.

2. "For whosoever shall keep the whole law and yet stumble in one point, he is become guilty of all." James (Revised Version) **2**: 10.

to be operated on for it in the near future. She was obstinately constipated, complained of loss of appetite, loss of weight, and pain in her stomach. The rectum contained a number of small, tender, cicatricial knots, probably the result of a former hemorrhoidal operation. Following the removal of these knots, her bowels became regular, the stomach pain ceased, her appetite improved, and she gained in weight.

Cases 2 and 3 show that anal and perianal irritation may cause pain in the region of the stomach, and that in such cases the rectum should be examined.

CASE 4.—H. W., a man, aged 38, was referred to me by a prominent Chicago surgeon in March, 1918, because of a supposed hemorrhoidal condition. I found he was constipated, had dragging pains in each groin, backache and a very long scrotum, while the rectal trouble was of little consequence.

So he was referred back with the suggestion that the surgeon amputate the scrotum, which was done. No improvement followed. Then I operated on him for the rectal trouble, and this operation, also, gave little or no relief. Later, when a Wassermann test was suggested, he became very indignant, but finally consented. The test gave a positive reaction, and specific treatment relieved him of his troubles.

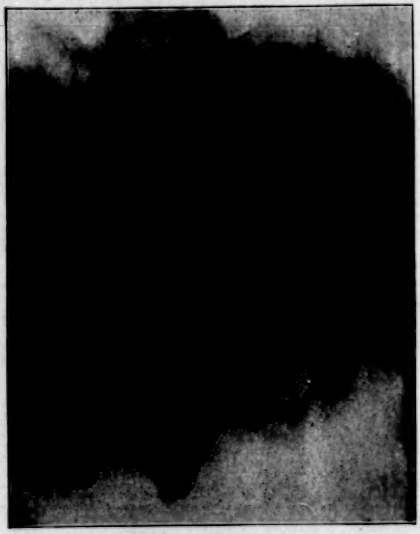

Fig. 4 (Case 2).—Fistulous tract from the sigmoid passing intestinally and out through the perineal incision, and a fistulous tract through the posterior vaginal wall.

CASE 5.—J. P., a girl, aged 8 years, had been severely constipated since birth, and passed a great deal of mucus with her stools. She also had periodic attacks of abdominal pain, with nausea and vomiting. The pain seemed to be located just to the left of the umbilicus. These attacks, which began early in 1915, usually occurred every month or six weeks, lasting from three to four days; at one time the interval was three months.

Late in 1915 she was very ill, and her condition was diagnosed as "pneumonia" and "hemorrhage of the brain." She became paralyzed on one side during this illness, but the paralysis began to subside after two months. When I saw her, she had been given treatment for the constipation and the mucous colitis; and opiates had been given occasionally during the attacks of pain, in the belief that she was passing renal calculi. Sinapisms had been given for the nausea and vomiting. A blood Wassermann reaction test was positive. Antisyphilitic treatment stopped all attacks, the bowels became regular, and the mucus disappeared.

CASE 6.—J. R., a man, aged 57, complained of hemorrhage and loss of weight. Examination revealed large protruding internal hemorrhoids, which bled on slight provocation. These and a small growth opposite the prostate were removed. He made a very tardy recovery; the bleeding continued.

Fig. 5 (Case 7).—Patulous anus and ulceration of the perineal and anal region.

He was again anesthetized to ascertain the cause of the hemorrhage. It seemed due to slight oozing from the mucosa, though no distinct lesions could be seen. The reaction to a Wassermann test was ++++. Antisyphilitic treatment finally controlled the bleeding, with consequent improvement in the general health.

Cases 4, 5 and 6 show the importance of a routine Wassermann test.

CASE 7.—R. P., a boy, aged 2½ years, was greatly emaciated and had a facial expression like that of an old man. In addition to prolapse, he had an eczematous eruption around the anus, penis, scrotum and pubes; and a secondary infection, of the same type, of the nose and mouth, and around the finger nails (Fig. 5). The itching about the anus was intense at times. Cultures from each region produced the same type of bacteria.

CASE 8.—Mr. G. was referred by his family physician to be treated for hemorrhoids, fissure and pruritus. Operations were performed for the first two, but recovery was greatly retarded. On more careful examination, it was found that the patient had a nasal infection, apparently of the same type as that of the anal region (Figs. 6 and 7).

Cases 7 and 8 show that anal infections may be transmitted to the nose or mouth by the hand. Similar conditions have been noted in pruritus ani, of which I shall have more to say in a future article.

Fig. 6 (Case 8).—Delayed healing six weeks after operation.

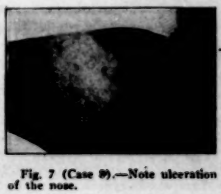

Fig. 7 (Case 8).—Note ulceration of the nose.

CASE 9.—Miss B., aged 44, had a perirectal abscess, which was opened, April 4, 1916, but failed to heal. Five weeks later she had an operation for a fistula; this likewise refused to heal. There was incontinence of feces following the last operation.

I first saw her in September, 1917, when the roentgen ray (Fig. 8) and sigmoidoscopy disclosed a fistula with the

internal opening at the rectosigmoidal junction, just above a large hypertrophied rectal valve. This internal opening was approximately 6 inches from the anus. The proctoscope (Fig. 9) was of sufficient length only to reach the distal surface of the valve. It was with difficulty that the sigmoidoscope,

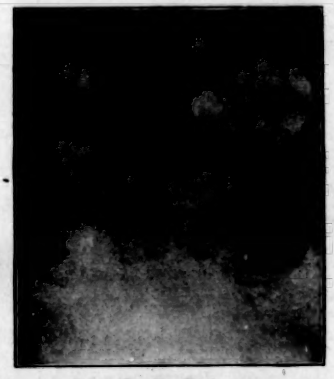

Fig. 8 (Case 9).—Fistulous tract.

seven-eighths inch in diameter (Fig. 9), was passed through the valve strait, which verified the diagnosis.

December 7, I passed a wire ligature through the fistulous tract, twisted it taut on the intervening tissues, and made a second roentgenogram three days later (Figs. 10 and 12). The final method of dividing the tract is shown in Figure 11. The recovery was uneventful.

This case illustrates the importance of a thorough examination and careful diagnosis before operating for fistula.

Case 10. J. A., a man, aged 59, consulted me in November, 1918, complaining of loss of weight, "tired feeling," loss

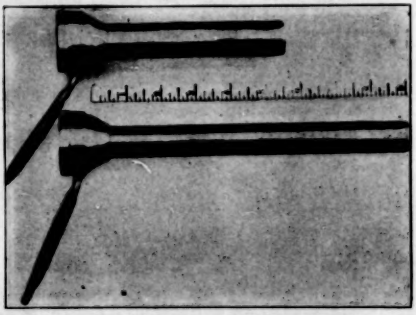

Fig. 9 (Case 9).—A scale and the proctoscope and sigmoidoscope used in examining the patient. The proctoscope, 5¾ inches long, introduced full length, did not reveal the bismuth paste in the bowel. To locate it required the sigmoidoscope.

of appetite and constipation. He was distinctly jaundiced, and there was a boardlike hardness, especially over the gallbladder and pancreas, with tenderness in the left iliac region.

I referred him to the clinical services of the Northwestern University Medical School, where he was examined and treated. Every known scientific procedure, except examination of the rectum and the sigmoid, was utilized in vain to ascertain the cause.

An exploratory laparotomy was performed by Dr. Cubbins, and the gallbladder was drained. No evidence of malignancy was detected. The patient died, Feb. 11, 1919. A necropsy failed to detect any definite cause of the jaundice. I removed the sigmoid and the rectum; there was a decided narrowing at the rectosigmoidal junction; the sigmoid itself was immensely dilated and the wall very thin.

Did this strictured condition and the resultant constipation cause the jaundice? At any rate, the condition might have been diagnosed during life had my colleagues and myself made a complete examination.

NEED OF MORE THOROUGH EXAMINATIONS

The foregoing and many other examples that could be cited show that while one may limit his practice to a certain specialty or region of the body, his treatment should be based on a thorough and complete examination of the whole body, the patient's habits, etc.

To examine a patient complaining of heart trouble by auscultation, percussion, etc., and not investigate

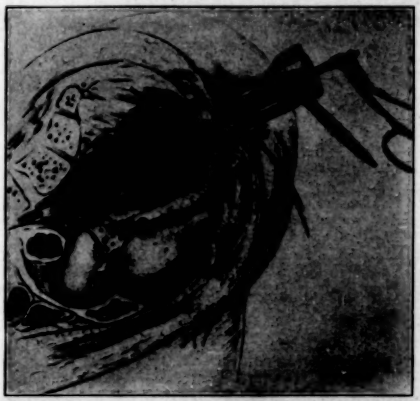

Fig. 10 (Case 9).—Schematic; a probe with an eye in the distal end carries a thread through the fistulous tract. The thread, to which is attached a wire, is grasped by the forceps and pulled out through the rectum. By tension and twisting, the wire was made taut around the intervening tissues. On the sixth day it broke and was replaced with linen ligature, as shown in Figure 14.

the nose, mouth, throat, rectum and other organs, is to be guilty of neglect. The same is true if the patient complains of stomach trouble, or of appendicitis, and in the case of many other ailments.

Recently, Dr. George H. Weaver[3] reported a case of streptococcus meningitis in a woman, aged 25, with recovery. He says: "The tonsils had been removed a year before" the onset, and that "repeated and thorough examinations of the ears, nose and throat by Dr. Robert Sonnenschein failed to detect any condition that might have been the focus of infection primary to the meningitis." There is no record, however, of a rectal examination in this case. Might not the primary cause have been located in the intestinal tract or rectum?

Captain Armitage[4] reports a case of brain abscess and death following amebic abscess of the liver. He

3. Weaver, G. H.: A Case of Acute Streptococcus Meningitis With Recovery, J. A. M. A. 72:1362 (May 10) 1919.
4. Armitage, F. L.: Amebic Abscess of Brain Following Amebic Abscess of Liver, J. Trop. M. 22:69 (April 15) 1919.

says: "Motile endamebas were found without difficulty; they . . . resembled exactly the endameba seen in . . . dysenteric stools." Furthermore, bacteriologic examinations of pus from the brain abscess showed streptococci, staphylococci and *B. coli-communis*.

This case shows that infection may be carried from the intestinal tract and rectum to the brain. And it discloses, moreover, that in many diseases of the brain and meninges, these organs should be examined for the primary focus.

A few months ago Desmarest,[5] another surgeon of Paris, stated that he had encountered fifty cancers of the rectum in his wards within three years, a large proportion too far advanced for operation. This was because the previous medical attendants had treated the bleeding and discharge as enteritis, colitis or "piles," and had made neither digital nor instrumental examination.

A gynecologist would not dream of treating disease of the pelvic organs without a vaginal examination through the speculum. It is my firm belief that the use of the proctoscope is equally imperative, and that the gastro-intestinal tract and rectum should be more frequently and systematically examined in constitutional and rectal diseases.

31 North State Street.

ABSTRACT OF DISCUSSION

DR. FRANK C. YEOMANS, New York: Sometimes you cannot get the injection through the fistulous tract because the bismuth paste is too thick. If you use an aqueous solution of methylene blue it is more apt to go through and you can then make a diagnosis very simply by recognizing the blue in the rectum. As to the proctoscope: My experience is that the proximally lighted instrument is preferable to those

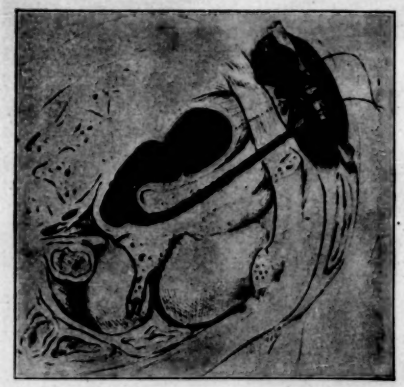

Fig. 11 (Case 9).—Diagrammatic: two ligatures—one for an emergency, the other for immediate use—passed through the fistula and out through the rectum, enclosing intervening tissues. To make tension on the ligature, the free ends are passed through the hole in an inflated vaginal pessary, which rests on the anal region, and wrapped around a flat stick that rests on the elastic pessary.

lighted distally for the reasons that (1) feces often covers the distal light and obscures the field, (2) the narrow auxiliary tube for the light carrier is cleaned and dried with difficulty, hence the little bulbs are often shortcircuited and burn out and (3) they cannot be sterilized without injury by frequent boiling as is necessary when examining cases of tuberculosis, syphilis and dysentery. I devised a tube to overcome these defects.

DR. JOHN L. JELKS, Memphis: As to Dr. Pennington's operation in that case where he suggests a major silver wire operation, I must differ with his technic. What would be the objection if you would split that area even to the peritoneum and sewed that intestine up and drained that area—not closed it but drained it—as you would any ordinary perirectal infection? You would not put silver wire in the ileum; then why put it here?

Fig. 12 (Case 9).—Wire ligature through fistula and rectum.

DR. E. G. MARTIN, Detroit: I would like to suggest one method of examination which does not seem to be in general use (at least it has not been mentioned today), and that is the observation of the barium enema under the fluoroscope during its administration. It is realized that in a multiple fistula one would not expect to observe the bismuth entering the tracts because it would not be forced in there, but in a pathologic anastomosis, of the sigmoid and cecum for instance, it is of great value. In the last case in which I used this method, there had been difficulty in diagnosis; the enema was clearly observed to fill the rectum, and to pass through a little tract filling a part of the cecum; immediately following, the bismuth passed up around the colon and completed the filling of the cecum. That point would not have been demonstrated clearly without the fluoroscopic observation of this enema during its administration. The technic is simple, and the later study of the stereoscopic plates will be made more comprehensive.

5. Desmarest, E.: Arch. de méd. de l'app. digestif, 1917, 1: 43.

The Symbiotes.—This is the title of a book recently issued by Prof. P. Portier, maitre de conférences at the Faculté des Sciences at Paris, professor at the Institut Océanographique. He has coined this term to express certain micro-organisms which live within our cells and supply nourishment to the cell. He says that all the biologic synthesis of the cell is the work of this living symbiote. It is the substratum of all synthesis. If they are lacking, the cell dies as it is unable alone to proceed in the work of repair. These intracellular symbiotes come from without and they have to be constantly renewed. They are killed by a temperature of 120 C. The symbiote in the cell is called by the histologists the mitochondrium, and the globulin in the circulating blood is merely the *symbiotes en voyage*. It is the lack of symbiotes which is responsible for the deficiency diseases, as the symbiotes accumulate in the periphery of grains, for example, and are discarded in the polishings of rice. This is the explanation of the vitamin theory: It is the lack of living symbiotes from which the subject is suffering. By injection of cultures of the symbiote he has saved animals succumbing to deficiency diseases; the paralysis or other disturbance promptly disappeared and the animal was soon as lively as before. A full analysis of Portier's book is given, with some of the illustrations, in the *Presse Médicale*, Feb. 24, 1919, and his views in regard to the participation of the symbiotes in fertilization of the ovum, in cancer, etc. The review concludes, "Portier has opened a new field of bacteriology. True or false, his theory will be the starting point for a host of works on symbiotic bacteriology."

THE ETIOLOGY OF COMMON WARTS

PRELIMINARY REPORT OF AN EXPERIMENTAL STUDY *

UDO J. WILE, A.B., M.D.
Professor of Dermatology and Syphilology, University of Michigan Medical School
AND
LYLE B. KINGERY, B.S., M.D.
Instructor in Dermatology and Syphilology, University of Michigan Medical School
ANN ARBOR, MICH.

That certain micro-organisms can, by direct implantation, give rise to disorders of keratinization, notably localized hyperkeratosis, is an accepted fact clinically and bacteriologically. Thus, the etiologic rôle of the gonococcus in the production of blenorrhagic keratoses, the tubercle bacillus in its relation to verruca necrogenica, and the gonococcus and pus organisms as causative agents in the production of acuminate condylomas stand out as striking examples of the aforementioned fact.

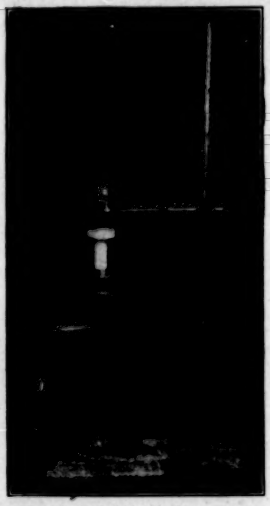

Fig. 1.—Berkefeld filtering apparatus used in experiments. White tape around glass containing filter shows level of paraffin to diminish filtering surface.

HYPOTHESES ENTERTAINED

In explanation of the etiologic factor in the production of common warts there have been advanced at various times the opinions that they are caused by an infecting organism, trauma or a foreign body. There are many clinical examples which stand out in favor of each of these hypotheses. The frequency with which verrucae occur at points of trauma, notably on the hands and feet, would at first glance speak strongly for trauma as the causative agent. In favor of a foreign body as a possible cause are the numerous clinical examples of localized hyperkeratosis following accidental implantation of thorns, thistles, bits of glass and steel. That localized hyperkeratosis of a warty type undoubtedly occurs following such foreign body implantation is, however, in no way conclusive proof of the etiologic moment of the foreign body itself. The injury incident to the entrance of the foreign body can as readily be accepted as the portal of entrance for an infecting organism.

The clinical evidence in favor of an infectious agent in the causation of warts is extremely suggestive. The appearance of so-called daughter warts following the initial appearance of a large wart, the appearance of warts on contiguous and apposing surfaces, so frequently observed, the occasional occurrence in small groups of individual warts in close association, all lend color to this view.

Fig. 2.—Early wart appearing at site of inoculation two weeks after injection of the virus.

From the experimental side, of interest in this connection is the observation of Payne,[1] who, after removing the surface of warts on a patient with his thumb nail, subsequently developed typical warts underneath the nail on his own finger. Similar observations are recorded by Lanz[2] and Stelwagon. Fox, Allen and Stelwagon have recorded the coincident occurrence of warts and molluscum contagiosum; and Fox and Allen,

Fig. 3.—Small, flat warts at sites of inoculation; larger wound is site of biopsy.

at least, are inclined to regard the coincidence as suggestive of an infectious agent.

In 1889, Kuhneman[3] described a bacillus which he found in the epidermis of verrucae. He reports having

* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Payne: Brit. J. Dermat. 3: 185, 1891.
2. Lanz: Cor.-Bl. f. schweiz. Aerzte, 1898, p. 264.
3. Kuhneman: Monatsh. f. prakt. Dermat. 9: 17, 1889.

cultivated the organism, and with cultures to have reproduced wartlike growths in laboratory animals. His results have never been substantiated by other observers. In 1893, Variot[4] inoculated the blood from small verrucae into one of his assistants "with positive results."

Fig. 4.—Typical verruca vulgaris developing suddenly from a small, flat wart eight weeks after inoculation.

By far the most elaborate experimental study, however, is that of Jadassohn,[5] in 1894. This author implanted small bits of tissue from warts under the epidermis. His experiments, undertaken over a long period of time, included seventy-four inoculations of this type. Of these, thirty-one gave positive results and led to the development at the site of implantation of typical warts. The incubation period of these varied from seven weeks to three months. It is of interest to note that in these experiments none of the warts attained a large size, and all, after persisting for a time, disappeared spontaneously. Histologic studies on excised experimental lesions showed them to be typical verrucae.

Within the last few years, similar studies have been made by Ormsby[6] and others in connection with verrucae plantaris.

During the past year, we have begun an experimental study embodying the attempt to produce localized hyperkeratoses by the injection of a filtrate of wart material. We began this work with the distinct conviction that warts might possibly be caused by a filtrable virus.

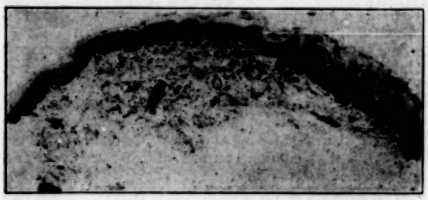

Fig. 5.—Biopsy of one of small warts shown in Figure 3: normal skin at one end of section and beginning hyperkeratosis at other.

REPORT OF EXPERIMENTS

Our experiments were performed in this manner: The wart material was taken by curettement and divided into two portions. One portion was placed in glycerin for a later experiment. The remaining half was immediately ground up in a mortar with an exceedingly small amount of physiologic sodium chlorid solution. This mash was then passed through a small Berkefeld filter, the filtering surface of which had been reduced by sealing all but the upper surface with paraffin (Fig. 1). The resultant filtrate, gathered under negative pressure, was immediately placed on slant agar to test its sterility, which was uniformly negative. It was then injected by means of a fine needle on a tuberculin syringe intracutaneously into the skin of the hands of ourselves and assistants.

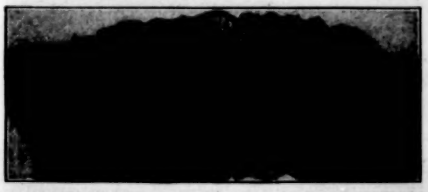

Fig. 6.—Later stage in development of wart, showing proliferation of the papillary tufts and marked hyperkeratosis.

Our first experiment in this way was performed, Feb. 4, 1919. March 5, or approximately four weeks later, small, flat, shining, wartlike lesions were found to have appeared at the sites of inoculation in one of us. Small lesions occurred, March 12, in a second one of us, and, March 26 (Fig. 3), in the third subject of the experiment. The lesions were unaccompanied by any subjective symptoms, and observation showed them to increase slowly in size, taking on more and more the characteristics of flat warts. A certain tendency to spontaneous resolution was noted in some. For the most part, however, warts produced by the inoculations in February are still present on our hands. In only one case did the wart reach a very large size. In this case, at about the eighth week, a small, flat wart on the inner side of the right middle finger suddenly grew until, in a few days, it reached the size of a large pea, with a distinctly warty and papillary surface (Fig. 4). Microscopic examinations of the lesions were made at repeated intervals from the time of their appearance. The first lesions examined (Fig. 5) showed the typical localized acanthosis described by Unna, Auspitz and others as the initial change in warts. In every case in which biopsies were made, small pieces of normal skin were removed from the adjacent areas for comparison. Hypertrophy, elongation and dipping down of the interpapillary tufts were noted in the later lesions.

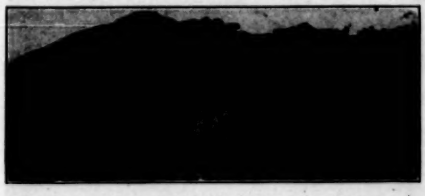

Fig. 7.—Early flat wart: marked hyperkeratosis; obliteration of papillae.

4. Variot: J. de clin. et de thérap. inf. ❍4: 892, 1893.
5. Jadassohn: Arch. f. Dermat., 1896, 5th Congress.
6. Ormsby: Personal communication to the authors.

In the large wart, which was excised about nine weeks after implantation, the typical structure of an old wart was noted (Fig. 10). In this picture, there is not only marked hyperkeratosis with proliferation and elongation of the interpapillary tufts, but also a mild

Fig. 8.—Later stage in development of warts, showing transition from flat to papular wart, hyperkeratosis, acanthosis, thickening and dipping down of interpapillary tufts.

inflammatory reaction to be noted deeper in the corium. As a control experiment, injections were made into one of our staff with a mash made up of small bits of normal epithelium in exactly the same way as was done with the wart material. The control experiments of this nature remained entirely negative.

Our second experiment, undertaken after the successful outcome of the first, was made to determine the possible retention of virulence of the virus if kept in glycerin. For the purpose of this determination, we

Fig. 9.—Later stage in development of flat wart into papillary wart, showing marked hyperkeratosis, beginning inflammatory reaction in cutis, and prolongation of interpapillary tufts.

been preserved in glycerin. March 12, therefore, a few days after the appearance of our first experimental lesions, we injected two members of our staff in exactly the same places and under exactly similar conditions with the sterile filtrate of the glycerin-preserved material. Thus far the results have been negative.

As may be seen from the accompanying photomicrographs, the histologic picture as well as pictures of the clinical appearance is typical of that of early warts.

The histopathology of verrucae vulgaris is in no way a matter of dispute, and it is not our purpose here to enter on a discussion of it.

Sufficient time has not elapsed for us to determine the influence of physical changes, such as light, heat and cold, on the virulence of the filtrate which we obtained. It is contemplated that experiments on this basis will be carried out.

The negative outcome of the glycerin-preserved filtrate is by no means conclusive proof, because of the insufficient lapse of time, the insufficient number of experiments, and other factors not determinable. Further experiments along this line will be carried out.

CONCLUSIONS

1. The sterile filtrate of wart material injected intracutaneously is capable of producing localized hyperkeratoses which are clinically and pathologically identical with verrucae vulgaris.

Fig. 10.—Section taken from well developed wart on finger shown in Figure 4, revealing marked hyperkeratosis, increase in stratum granulosum, prolongation of interpapillary tufts, inflammatory reaction in the cutis, and slight vacuolization in the cells of the rete.

2. The initial experimental lesion starts as a flat wart which in no way differs from that seen in verruca plana.

3. Interpapillary hypertrophy, inflammation and marked hyperkeratosis, we believe, occur as secondary traumatic manifestations, and we are agreed with Unna that the initial change consists of an acanthosis and flattening of the papillae.

4. Without denying that it is still possible that localized hyperkeratosis resembling verrucae may be due to traumas or foreign bodies, it is definitely demonstrated that such changes can be caused by a filtrable virus. It is not unlikely that when trauma and foreign bodies apparently are present as inciting factors, they may merely represent the point of entrance of an infectious agent such as has been determined in these experiments.[7]

7. In addition to the references already given, the following will be found of interest:
Pollitzer: Brit. J. Dermat., 1890, p. 199.
Schaal: Arch. f. Dermat., 1896, p. 728.
Morrow, Allen and Brownson: J. Cutan Dis., 1899, p. 183.
Vives: Jour. mal. cutan., 1899, p. 463.
Montgomery, D. W.: The Etiology of Verruca, J. A. M. A. 56: 1193 (April 22) 1911.
Stern: München. med. Wchnschr. 41: 2233, 1912.

ABSTRACT OF DISCUSSION

DR. WILLIAM T. CORLETT, Cleveland: The subject of warts is a very disagreeable one, because it is so elusive; in fact, everything pertaining to warts seems elusive, except the wart itself which often is most tenacious. We do not know much about the etiology of warts, and their treatment is disappointing. In several instances they have appeared to me to be contagious. In fact, I have seen a number of cases that seem

Fig. 11.—Normal skin taken from neighborhood of wart for comparison.

to justify this conclusion. Nothing very definite thus far has been brought out concerning their etiology. I, therefore, wish to congratulate one of the youngest members of the section in attempting to work out, in the laboratory and under the direction of Dr. Wile, this excellent demonstration of the subject which should be regarded as promising and deserving of further and more conclusive study.

DR. WILLIAM C. MACCARTY, Rochester, Minn.: I have been very much interested in the doctor's experiments because I am interested in the histogenesis of such organisms. Perhaps you are familiar with the histogenesis of neoplasms and with Smith's work. I have followed his work well, in fact, I was with him up to a month ago. He isolated his organism by producing plant tumors. He carried on these experiments in regard to the parasitic idea of the neoplasms and it was with great difficulty that he worked this out. A year or so ago he produced some similar neoplasms by chemical means, and in plants he produced neoplasms by injuring the water supply and the roots of the plants. I hope that Dr. Kingery will not draw too positive conclusions. We are all interested in this work. Experiments should be made from a physical standpoint, as he has suggested. I wish to express my appreciation as a pathologist of this experimental work and hope that he will not only continue it but that others will carry out the experiments.

DR. HARRY G. IRVINE, Minneapolis: I wish to add my appreciation of this contribution of Drs. Wile and Kingery and also of Dr. Kingery's excellent presentation of the subject. It is a very valuable and excellent attempt at arriving at the etiology of this very common disease. In some instances the lesions began as ordinary warts and later became verruca vulgaris. This is interesting because while we have thought that they were more or less alike, we know that one is affected by certain treatment and the other not at all. I think this is especially interesting.

DR. UDO J. WILE, Ann Arbor, Mich.: In answer to Dr. MacCarty I may say that we knew of Dr. Smith's work and with due allowance for his results, I do not think we have overstated our case. The facts are these: Material from warts passed through a Berkefeld filter produced lesions which were clinically and pathologically identical with warts. Warty growths undoubtedly can be produced by other organisms; thus the tubercle bacillus and the gonococcus undoubtedly produce warty growths. We believe that common warts, however, are produced by this filtrable virus. If a filtrable virus can produce marked epithelial hypertrophy, may not this have a bearing on the growth of epithelium in other tumors, for example, malignant tumors? It is at least suggestive. As to the nature of the virus, we say it can not be cultivated by ordinary methods, but nevertheless it may be an ultramicroscopic organism. We feel that further investigation will prove it to be such.

DR. LYLE KINGERY, Ann Arbor, Mich.: As Dr. Wile has said, we were familiar with Dr. Smith's work. As for producing tumors in plants, he was able to do it with ammonia and copper salts. Whether there was anything mixed with our material, such as small drops of blood, remains to be shown. We hope to do more work on the subject.

A NEW ADHESIVE MATERIAL FOR TRACTION

W. F. CUNNINGHAM, M.D.
NEW YORK

The fixed traction and traction suspension methods of treating fractures have been so widely adopted, and with such satisfactory results, that anything which might increase their application is worthy of a few descriptive lines.

Of the available substances for adhesive traction, Sinclair's glue is undoubtedly the most satisfactory. At times, however, because of the variability of the fish glue from which it is made, it lacks the necessary adhesive force. It is irritating to certain skins; but this may be due, partly, to faulty preparation or to applying it too hot. Salicylic acid has been used as a preservative according to some of the formulas. This should be avoided, as it increases desquamation; thymol is equally effective as a preservative. Frequently, it is necessary to wait some time after it is applied before traction can be made, and a relatively large area of skin must be available for its application.

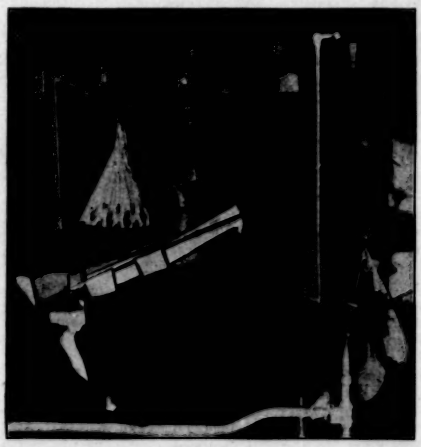

Fig. 1 (Experiment 1).—Traction, suspension apparatus for fracture of femur with 30 pounds of traction applied.

Many of the foregoing disadvantages may be avoided by the use of a solution of celluloid in acetone. For several months past, experiments have been made with a 5 to 10 per cent. solution of celluloid in acetone, and we have found that this makes an excellent adhesive material. Twenty-five applications of this solution

have been carefully observed, and it is believed that the scope of traction is increased by its use.

Through the kindness of the American Celluloid Company we secured a supply of celluloid scrap from which an excellent solution may be made. The first

Fig. 2 (Experiment 7).—Suspension of leg for fracture of metatarsus; 10 per cent. solution to dorsal and plantar surfaces of great toe only.

experimental work was done with celluloid combs, as it was impossible to obtain celluloid scrap in France.

Given a standard adhesive material, experiments should be conducted to determine the relation between the area of surface glued and the amount of traction that can be applied. The skin tolerance for maximum weight should be known. This will vary in different parts of the body, and probably indirectly with movability of the subcutaneous tissues.

PREPARATION

The required amount of celluloid scrap and acetone are placed in a *dry*, clean, wide-mouthed bottle and securely stoppered. The bottle is then shaken or agitated at intervals, and the solution is ready for use in from twenty-four to forty-eight hours. When properly made, it should be an almost clear, homogeneous, syrupy fluid. The experimental solution of combs was often lumpy and contained some acetone insoluble material.

Acetone is very volatile, so precautions should be taken to prevent evaporation. During the war when these experiments were carried out celluloid was difficult to obtain and acetone sold as high as 30 francs a liter; but the antewar selling price of acetone, which is used in the aeroplane industry, was 35 cents a pound. One liter will make sufficient material for from thirty to forty applications.

MODE OF APPLICATION

In the experiments, no careful preparation of the skin was made. It should, however, be absolutely dry; and the preliminary use of a few cubic centimeters of acetone on the region to be employed may aid in this respect, but is not necessary. A layer of celluloid solution is rapidly applied by means of a small, stiff brush. The quantity should be sufficient to soak through the strip on which traction is to be applied, and a thin coating should be applied externally to get out all the wrinkles and air bubbles. Canton flannel is the best material for strips, but a double layer of gauze or muslin that is neither too hard nor too finely woven may be used.

Iodin and also picric acid and alcohol should be avoided as far as possible on areas to which any type of adhesive is to be applied. Both these drugs increase exfoliation, and we well know the reaction of certain skins to the former. We believe, with Sinclair, that the part should not be shaved before adhesive material is applied, for the hairs, if abundant, increase the efficiency of the adhesive, like hair in plaster. If there is delay in putting on the strip, the skin should be recoated, for it drys out in a thin, flexible film in a minute or two. The application of a circular gauze bandage over cotton increases the effectiveness of adhesion and should be used. It is needless to state that the solution is combustible; therefore it should not be heated, and containers should be so labeled.

Flexible metal tubes can be used as containers, direct application being made from them. This type of dispensing could be utilized for emergency use, as this method has proved practicable, but it would add materially to the cost. Muslin strips have been impregnated with the solution, with the hope that it might be used like adhesive plaster, acetone being added when applied; but this method has proved unsatisfactory.

REPORT OF EXPERIMENTS

Experiment 1 (Fig. 1).—An application of a 4.9 per cent. solution of celluloid combs was made to the leg (there was no fracture in this case), 3-inch muslin strips being used, applied over an area of 6 inches. Traction of 30 pounds was applied as soon as the leg could be put up in apparatus and timed just less than ten minutes. Because the patient was so uncomfortable, 10 pounds were removed at the expiration of six hours and 10 more after seven hours. Traction and

Fig. 3 (Experiment 9).—Traction, countertraction metacarpal splint. Adhesive applied to volar forearm and volar and dorsal aspects of fingers.

the strips, which were still holding securely, were removed after seventeen days. There was no irritation of the skin.

Experiment 2.—An application of a 10 per cent. solution of celluloid combs was made to the lower humeral region over an area of 2 by 3 inches, for a fracture of the lower end of the humerus. To this area, with the inclusion of the forearm, Sinclair's glue had previously been applied and the skin was blistered. Immediate traction by the hand was secured and held firmly by a pin in the notches of a Jones splint. An anesthetic was necessary for reduction, so the strip was removed at the end of forty-eight hours. The greater part of the skin had blistered to the vascular layer, and when

removed, left multiple bleeding points. The traction was undoubtedly excessive for the skin tolerance.

EXPERIMENT 3.—An application of a solution of celluloid combs was made to the anterior two thirds of the plantar surface of the foot for dorsiflexion in traction suspension (fracture of femur). Sinclair's glue had slipped four times, the last time within forty-eight hours. The strip applied with celluloid pulled away spontaneoulsy after thirty-eight days. The inner side of the muslin was covered by a layer of epidermis, but the skin beneath was without irritation.

EXPERIMENT 4.—An application of a 5 per cent. solution of celluloid combs was made to the lower femoral region over an area of 3 by 5 inches for a fracture of the upper one third

Fig. 4.—Molded sole plate, traction bar in position.

of the femur. Fifteen pounds traction was immediately applied. One side pulled away after fourteen days, and from its appearance it was concluded that the application had been unsatisfactory. An area of desquamated skin about 1 inch square remained attached to the strip, which did not appear to be holding at other points. The skin was also desquamating from picric acid.

EXPERIMENT 5.—An application of a 10 per cent. solution of celluloid combs to the skin was made with a 5 per cent. solution to the overlying muslin strip, in the malleolar regions over an area of 3 by 6 inches, with a pressure bandage over the cotton for a fracture of the lower third of the tibia and fibula. There was a wound 2½ inches above the tip of the malleolus. The foot in this instance was edematous, and there was a pressure sore over the heel. Immediate traction was secured by the hand and held by a heavy rubber tube. The patient was evacuated after twenty-seven days with the strip still holding.

EXPERIMENT 6.—An application of a 5 per cent. solution of celluloid combs was made to the forearm over an area of 3 by 5 inches for a fracture of the humerus. A traction of 5.5 pounds was applied. One half of the area had been blistered by a previous application of Sinclair's glue. After seventeen days the strip was removed and it was found that the blister had healed beneath. The patient was put in a plaster.

EXPERIMENT 7 (Fig. 2).—An application of a 10 per cent. solution of celluloid combs was made to the dorsal and plantar surfaces of the great toe, distal to the metatarsophalangeal joint, for fracture—dislocation of the tarsometatarsal joint. Suspension of the leg by traction on the great toe, using a muslin strip 1 inch wide and a firm bandage, was secured. The leg was taken down at the end of three days to prepare for an operation. The skin was in excellent condition. About one half of the time the patient was so uncomfortable that the heel was partially supported by a pillow.

EXPERIMENT 8.—With a 6 per cent. solution of celluloid scrap applied to the forearm over an area of 1¾ by 6 inches, Canton flannel strips being used, sufficient pull was exerted, three minutes after application, to pull the patient with the hospital bed without casters several feet, and the strip was still holding.

EXPERIMENT 9 (Fig. 3).—In a compound fracture of the second, third and fourth metacarpals with extensive laceration, a composite molded plaster and aluminum splint were made fast to the forearm with a 6 per cent. solution. Traction was secured by strips fastened to the fingers and secured by rubber tubes to a frame. The patient was under observation for almost two months, and the splint was still intact.

The celluloid solution was applied with satisfactory results in numerous other cases of fracture of the femur and humerus. Since these cases presented no points of added interest, they need not be described.

SOLE PLATE TRACTION

The subject of sole plate traction has not such a field as it had before Nov. 11, 1918, but occasionally in civil life, in crushing injuries of the lower extremity or compound fractures with badly lacerated soft parts, the method of traction becomes a puzzle. There are cases when traction strips cannot be used, and cases when Steinmann pins, Besley tongs, or Finochietto bands cannot be used without the risk of opening up new foci for micro-organisms to lodge and thereby increase infection.

It was for just such cases that Sinclair devised the "skate." This mechanism was glued to the sole and strips for reinforcement were carried over the dorsum of the foot. In certain cases the skin of the dorsum of the foot is in such condition that strips cannot be applied.

At No. 1 General Hospital, B. E. F., we had many cases of this type, and used an accurately molded sole plate with a 10 per cent. celluloid solution. The plate (Fig. 4) is made as follows: A light plaster impression of the plantar surface of the foot is made of four or five layers of bandage over Canton flannel long enough to extend from just beyond the big toe to the attachment of the Achilles tendon. This is accurately molded by hand and held in position for half an hour by a snug bandage over cotton. This is removed and reinforced by an aluminum strip, which is secured to the impression by a plaster bandage to which are attached traction cords. These should be so placed that the line of pull will pass through the center of the internal mal-

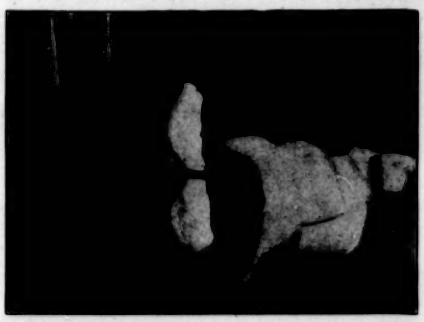

Fig. 5.—Fracture of femur, laceration of leg; molded sole plate completed and mode of traction; breaking stress, 38 pounds.

leolus, which position will prevent foot drop. After the mold has been thoroughly dried in an oven, a quantity of the 10 per cent. celluloid is poured into it and the whole is applied to the foot. A bandage over cotton is necessary to hold it in place until thoroughly dried. From one to two hours are allowed for this, and a 12 to 15 pound traction may be used. The sole plate seen in Figure 5 pulled away after 38 pounds had been applied. Several of these with from 9 to 15 pounds of traction have been observed for periods of thirty days and more.

No attempt has been made in any of these cases to demonstrate the effectiveness of external traction, for this seems to be an accepted fact; but an attempt has been made merely to show that celluloid solution is an adhesive which can be used when other materials fail.

CONCLUSIONS

1. From 5 to 10 per cent. celluloid in acetone makes an excellent adhesive material.
2. Its rapidly volatilizing quality permits of immediate traction.
3. In high concentration it can be used when only small areas of skin are available.
4. It is insoluble in water; hence, it is not affected by perspiration or climatic changes.
5. Solutions which are likely to increase desquamation should not be used prior to the application of adhesive material.
6. The natural process of exfoliation of the epidermis limits the effectiveness of one application to about three weeks; on the plantar surface of the foot, over four weeks.

116 East Sixty-Third Street.

MACROCHEILIA *

FREDERICK B. MOOREHEAD, M.S., M.D.
AND
KAETHE W. DEWEY, M.D.
CHICAGO

Macrocheilia, or enlargement of the lip, is essentially a hypertrophy or hyperplasia, involving chiefly the lymph vessels. It is therefore generally classed among the lymphangiomas. Very brief and very few are the statements found in textbooks on pathology concerning this abnormal condition of the lips, and little space is generally given it in clinical reports and in journalistic literature dealing with lymphangiomas. It is chiefly since Wegner's[1] investigations on the subject that it has become customary to consider this condition as a lymphangioma or a lymphangiectasis. Sluys[2] calls it a lymphangiomatosis. The blood vessels, however, may be as much involved as the lymph vessels. Occasionally, the blood vessels alone are abnormally developed. One of the most remarkable cases of macrocheilia on record is one of a hemangiomatous macrocheilia, reported by Sonntag.[3] It was associated with a hemangiomatous macroglossia. Cases have also been observed in which the proliferation involved chiefly the connective tissue. An entirely different and rare type of macrocheilia is represented by a few cases in which the enlargement was due to an abnormal development of the mucous glands of the lips. According to Fraenkel,[4] they are either due to purely inflammatory processes, or are genuine, that is, congenital, abnormalities.

Fig. 1.—Appearance of patient before operation.

Fig. 2.—Patient after operation

Fig. 3.—Plaster cast before and after treatment.

Macrocheilia is a purely clinical conception, as Eichler[5] states, who defines the malformation as a persisting condition of a uniform swelling, equal in all dimensions. The lip appears twice, thrice and even six times as large as normal. The essential form is, in general, retained, but it is peculiarly clumsy and entirely out of proportion to the other parts of the face. The abnormality has been so marked in some cases that such a mouth has been compared to a snout or a trunk. A circumscribed lymphangiomatous enlargement of the lip is therefore not to be called macrocheilia, nor does any temporary swelling resulting from inflammatory processes belong to this group of malformation. A few cases, however, have been observed in which a true macrocheilia, that is, a persisting uniform enlargement of the lip, developed as a sequel of recurrence of erysipelas.

DEVELOPMENT OF MACROCHEILIA

Macrocheilia is generally congenital; but it may also be acquired. The collective name of lymphangioma, applied to the condition to which this malformation is accredited, includes a large variety of forms, which are difficult to separate into well defined groups. But the congenital form of macrocheilia, together with several similar congenital lymph angiomatous or hemangiomatous hypertrophies of the face and neck, constitutes a fairly well characterized group, namely, that of the tongue (macroglossia), the cheek (macromelia), the skin (nevus lymphaticus) and the palate and the neck (hygroma colli et cervicis congenitum). In the congenital form, the malformation may be present at birth; in these cases the same disproportion of the size of the lip to the rest of the face remains as the child grows. Or there may be a mere suggestion of the malformation in the new-born child, and the disproportionate development occurs later. This is sometimes observed in association with recurrences of inflammatory processes, especially in erysipelas. Generally, the condition appears soon after birth or in

* Read before the Section on Stomatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Wegner, G.: Ueber Lymphangiome, Verhandl. deutsch. Gesellsch. f. Chir. **5**: 256, 1876.
2. Sluys, F.: Ein Fall von Makrochilie, Strahlentherapie, Orig. **5**: 241, 1914.
3. Sonntag, E.: Ausgedehntes Haemongioma cavernosum der Unterlippe und Zunge, sowie dessen Behandlung, Arch. f. klin. Chir. **104**: 972, 1914.
4. Fraenkel, E.: Ueber einen Fall von Makrocheilie durch Adenome der Lippenschleimdrüsen, Arch. f. klin. Chir. **44**: 95, 1892.
5. Eichler, M.: Zwei Fälle von congenitaler Macrochilie der Unterlippe, Bonn, 1883.

earliest childhood. Instances in which it developed late in life are rare; in a case reported by Sonntag, the patient was 47 years old; Sluys reported macrocheilia in a woman, aged 54.

In women, the condition is apt to arise at the beginning of menstruation, during pregnancy or at the menopause. The development is rarely acute; generally it is slow, and in some instances interrupted by long intervals. In the cases in which the macrocheilia appeared late in life, the condition developed suddenly. One lip or both may be involved; macroglossia may be associated with it. In a few cases, alterations in the form of the jaw have been observed; the teeth are also sometimes involved. A remarkable case was one reported by Sonntag in 1914,[3] which occurred in a man, aged 47. The lower lip and the tongue were enlarged to such a degree that the patient was unable to bite or chew, or to keep the tongue within the mouth except by holding it back with the hand. The tumor was a hemangioma; by pressing down on the tongue or stroking backward, the size could be reduced almost to normal. This may be done with some lymphangiomas also—by pressure, the tumor may be greatly reduced. When the pressure is released, there is a return to the former size. The enormous amount of blood thus indicated greatly complicated the operation reported by Sonntag, which, however, was accomplished, giving satisfactory results.

TREATMENT WITH RADIUM

Successful treatment with radium was reported in 1914 by Sluys.[3] The patient was a woman, aged 54. The tumor was very large, of even consistency, and

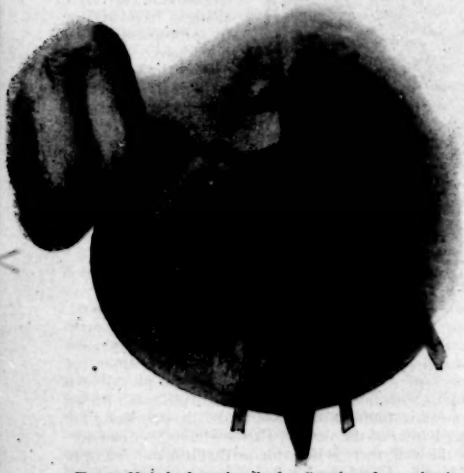

Fig. 4.—Method of opening lip for dissection of excessive lymph tissue.

not producing any pain. Ten days after the first treatment the tumor had completely disappeared. Sluys employed the gamma rays—which penetrate the deeper structure, leaving the outer tissues unaffected—with the result that no pigmentation occurred and a fairly well developed mustache, which the woman possessed, remained intact.

The abnormal growth in macrocheilia involves chiefly the corium and the subcutaneous tissue. The main feature is dilatation of the lymph vessels. A new formation of vessels is not always demonstrable; the

Fig. 5.—Completed dissection and method of closing wound with horsehair suture.

condition is more often one of lymphangiectasis. If the process progresses, the ectasis may develop into a cavernous lymphangioma. The connective tissue, which frequently proliferates simultaneously, is generally rich in lymphocytes and may contain elastic fibers and smooth muscle fibers. Not infrequently, the blood vessels are also abnormally developed. Sometimes blood is found in spaces which are clearly lymph spaces. This observation is explained by the fact that the blood vessels and lymph vessels are often very close together; the former sometimes actually seem to lie within the latter; the slightest injury may therefore lead to an exchange of the contents between lymph and blood vessels.

ETIOLOGY

As to the etiology of macrocheilia, several theories have been advanced, but a satisfactory and generally accepted explanation has not yet been given. Virchow's view is that the condition is due to some disturbance in the development of the branchial arches. This may be true in some instances; Eichler[5] believes that in one of his cases there were evidences of such an origin. Nevertheless, we are still entirely ignorant as to the influence which produces the disturbance. Samter[6] expresses the view that probably all congenital lymphangiomas, including those which develop at an early period of life, have an embryonic origin, which consists in the development of lymphoglandular tissue. They occur in the regions in which dermoids are found. Stasis of the lymph is to be considered as the immediate cause of the lymphangiectasis in macrocheilia; this has been explained as being due to obliteration of the lymph vessels in the deeper layers of the skin by proliferation of the endothelium, or, according to Rind-

6. Samter, E. O.: Ueber Lymphangiome der Mundhöhle, Arch. f. klin. Chir. (Langenbeck's) 42:829, 1891.

fleisch,[7] to hyperplasia of the muscle fibers, impeding the lymph circulation. Wegner, in his classical work on lymphangiomas, discusses three ways in which the stasis of the lymph may be brought about: First, there may be occlusion of the regional, efferent lymph vessels, which may be produced either by a primary fault in the development (vitium prima formationis) or by thrombosis, or by compression and misplacement resulting from local processes of inflammation and scar formation. Secondly, there may be an active proliferation of the endothelium of the lymph vessels, in the course of which solid cell masses are formed. Between these endothelial cell accumulations, hollow spaces develop which, by opening into preexisting lymph vessels, become real, new lymph vessels. This constitutes a homeoplastic neoplasia. A probable third mode is that granulation tissue develops in a connective tissue matrix, and, indirectly, by secondary transformation of this tissue, new spaces containing lymph are formed. This is a heteroplastic neoplasia. Wegner is of the opinion that in the congenital form of macrocheilia, the stasis appears during the fetal period of life, the disturbance occurring in a region involving the lymph vessels; possibly the efferent lymph vessels are occluded because they are primarily not sufficiently developed. According to Borst,[8] there may be at an embryonic period of development an excessive formation of lymph vessels, perhaps associated with a faulty connection between these and the rest of the lymph system, with the result of stasis and ectasis.

Fig. 6.—Microscopic preparation of the lymphangiectatic tissue removed from the patient. 1, Blood vessels; 2, lymph vessels; 3, papillary proliferation of endothelial cells; 4, small round-cell infiltration; 5, coagulated lymph.

Microscopic examination of the tissue removed from a patient with macrocheilia revealed that the abnormal development involves the blood vessels to the same degree as the lymph vessels. Evidently, they are for the most part dilated capillaries, having only an endothelial wall. The blood vessels often have constrictions and ampulla-like dilatations; they are curved, or form cavernous sinuses. The lymph vessels and spaces surpass the blood vessels in size; they are very irregular in form, and many of them have, like the blood vessels, a cavernous appearance. Two or three may communicate with one another. They are lined with a continuous endothelial layer; sometimes the cells are separated; more rarely, spaces are found which have no cells. This separation of endothelial cells and the more infrequent absence of cells are, of course, the result of the lymph stasis. By the increasing pressure, the thin wall is stretched, and the cells lie farther apart; they are flattened out and finally may disappear entirely.

The hemolymphangioma involves chiefly the corium and the subcutaneous tissue. There are also dilated blood and lymph capillaries between the muscle fibers in the deeper layer of the tissue. There is not a marked general proliferation of the endothelial cells; but interesting and noteworthy are the papillary cell proliferations extending from the wall into the lumen of the lymph vessels. Five or six such intravascular papillae are present in almost every section. These cell collections appear either as small elevations, closely adherent to the inner wall, in the form of darts or nodules, or as larger, globular or berry-like masses, which become pedunculated and finally are entirely detached. They consist of proliferated endothelial cells and small round cells; flat endothelial cells are sometimes found at the periphery, forming a sort of outer lining.

As the process goes on, the proliferating cells assume larger forms; sometimes fusion of the protoplasm of several cells takes place. In the largest villi, regressive changes have set in; the protoplasm is disintegrated, and the nuclei have disappeared. These changes are always most marked in that portion which is nearest the vessel wall, while toward the lumen the cells are well preserved. Sometimes cell proliferations extend like bridges from one side of the wall to the opposite one. These papillae occur only in lymph vessels. They are not thrombi; polymorphonuclear leukocytes are absent in them. The larger number of lymph vessels and lymph spaces are empty; in others there are masses of coagulated material, which is precipitated lymph. Sometimes, a finely granular, yellowish brown pigment is found within coagulated masses along the inner border of the vessel wall, sometimes also just outside the wall; there is no evidence that it is derived from the blood. These precipitated masses are the result of the stasis of the lymph. Wegner described them first and called them lymphthrombi; he observed all forms of transitions in the regressive changes. Cellular lymphthrombi, however, which he mentions, are not present in our sections; only rarely a polymorphonuclear leukocyte or a red cell is engulfed in the precipitated mass. Occasionally, an entire small vessel,

7. Rindfleisch, E.: Lehrbuch der pathologischen Gewebelehre, Bonn, 1871.
8. Borst, M.: Pathologische Anatomie (L. Aschoff), Jena, 1913, 2: 695.

content and wall, is converted into one mass, resembling huge giant-cells; in some of them the nuclei of the proliferated endothelial cells have remained at the periphery, in others they are grouped eccentrically or lie in the center.

The blood vessels are, outside the normally existing arteries and veins, dilated capillaries, the walls of which are as thin as those of the dilated lymph vessels. They are recognized by the presence of blood. Sometimes, a few blood corpuscles are also found in lymph vessels. Their presence is easily explained. Lymph vessels and blood vessels lie close together; the latter seem sometimes to invade the former. Communication between blood and lymph vessels is not unusual in lymphangiomas. Through pressure from the continued stasis, the thin wall may be so overdistended as to yield at one point or another to the higher pressure from an adjoining blood vessel, and blood then passes into the eroded lymph vessel. Thrombi may form at these places, which close the opening; but in the course of regressive changes they may be canalized again. When several vessels communicate, there is generally proliferation of the endothelial cells at the place of confluence.

There is only a moderate degree of proliferation of the connective tissue, while there is a noteworthy increase of smooth muscle fibers. Infiltration with small round cells is present, more or less, throughout the corium. They collect especially around the vessels. There are regions in which the lymphangiectasis is in the background; here the tissue consists largely of lymphocytes and innumerable minute vessels. Here and there are denser collections of lymphocytes, which resemble lymph follicles. There are areas of small and large hemorrhages in all stages of regressive changes.

In the case of macrocheilia shown in Figure 1, there was a cavernous hemolymphangioma, which was probably of a congenital origin. The abnormal development did not consist of an angiectasis only, but obviously a new formation of blood and lymph capillaries had also taken place. An interesting feature was the papilla-like intravascular proliferations of the endothelial cells. Indications that they might be sprouts which develop into new lymph capillaries were lacking. A perceptible lumen was nowhere found. The regressive changes which they undergo also speak against such a supposition.

OPERATIVE TECHNIC

The operation for correcting macrocheilia is not difficult. Unless, however, it is intelligently performed, deformity may result. The lips are clamped with a lip-clamp to prevent hemorrhage, which is profuse. The mucous membrane is opened by two parallel incisions the entire length of the lip, and a small section of tissue is removed. By careful dissection, the excessive lymph tissue is removed until the lip has been reduced to normal. The wound is closed with a figure eight horsehair suture, the first loop closing the deep structures and obliterating dead spaces, and the second loop closing the mucosa. If horsehair is used in this fashion, buried sutures are not necessary, and scar formation is reduced to a minimum.

ABSTRACT OF DISCUSSION

DR. VILRAY P. BLAIR, St. Louis: Too often talks on the result of surgery of the face are merely descriptive of technic, and the result is sometimes not what you want. The question of this lymph enlargement is one of the most difficult things we have to deal with in surgery. I have always been held down a little bit, possibly, by the fetish of Butlin, that if you burn these things or irritate them, you possibly may get some reaction toward sarcomatous formation. I cannot say that I have ever seen it, but I have always thought it deserved some attention. I have tried radium. Other people have found it a success, but I have not had very good results. The way we have handled them is to pick out blocks of tissues where it could be done with the least possible deformity resulting. The whole thing appeals to me as one of the meanest conditions in surgery, unless you can take it out as a whole.

DR. M. I. SCHAMBERG, New York: The paper of Dr. Moorehead is interesting, and the most important part of the paper to my mind is the fact that he called attention to the differentiation between the two cases of macrocheilia and those cases where there is a localized hemangioma or hematoma within the lip, or other types of inflammatory disturbances of a transient character. Often, as the result of injury, the lip may swell temporarily with the absorption of the inflammatory products, or the blood which may have extravasated into the tissue. I have had a number of lip cases within the past ten or twelve years that were intensively interesting. One was in a member of my own famfly, an infant born with a large hematoma of the lip. This was readily removed with a very nice result. The great tendency is to remove insufficiently the amount of the growth in these cases of hemangioma. In the case of lymphangioma the growth is more nearly uniform, and the lip is enlarged throughout. It is important to differentiate between those cases in which there is a localized growth within the lip, those which are distinctly inflammatory or transient, and those in which there is a true hypertrophy. There is one other type of lip condition that sometimes resembles a macrocheilia and that is the so-called double lip, or what I prefer to call prolapse of the lip, which is much like the prolapse of the anus. These cases can be handled in very much the same way. I am fully in accord with the view that it is necessary during the operation to be sure that you have removed sufficient of the lip by approximating the edges, and that the best results are not seen within a week or two after the operation. It takes a little time for the lip to reestablish the disturbed circulation, and to cause absorption of the edges of the wound, which are rather stiff as the result of the operation.

DR. THOMAS L. GILMER, Chicago: It seems to me that the term macrocheilia is not the best name for the conditions described. It means simply an enlarged lip, and since we have so many different conditions which cause enlarged lips, we should be more specific in differentiation. I have had better success in the treatment of enlarged lips due to prolapse of the mucosa than in cases of lymphangioma of the lips. I have had but one case of the latter, and in this, the success was not as good as I had hoped for. I dissected out the enlarged lymphatics in the lip as thoroughly as it seemed desirable, even making the lip smaller than it should be, but in the course of a few months, the lip was enlarging again. I have had the same fears as expressed by Butlin and also by Dr. Blair today of the possibility that changes to malignancy may result from surgical interference.

DR. FREDERICK B. MOOREHEAD, Chicago: Dr. Blair has raised the question of malignancy, and it is interesting to note that a careful review of the literature does not reveal a single case of malignancy in connection with the lesion under discussion. The use of radium in these cases is more or less experimental as it is elsewhere. I have not had enough experience in the use of radium to make any definite statement about its application.

Medicine as a Business.—If business men, looking at the practice of medicine as a "business proposition," have seen the advantage of organization, may not the time come when medical men who see the practice of medicine as a high and noble profession will grasp the opportunity to join with one another in developing efficient centers of group medicine? —M. M. Davis, *Am. J. Pub. Health* **9**:361, 1919.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE GALLBLADDER AND BILIARY DUCTS

PRELIMINARY REPORT ON A NEW METHOD

B. B. VINCENT LYON, A.B., M.D.
Chief of Clinic, Gastro-Enterological Department, Jefferson Hospital; Attending Physician, Methodist Episcopal Hospital
PHILADELPHIA

Two years and a half ago a paper was published by S. J. Meltzer[1] of the Rockefeller Institute which carried at the end this footnote:

> In experiments with magnesium sulphate I observed that the local application of a 25 per cent. solution of that salt on the mucosa [of the duodenum] causes a completely local relaxation of the intestinal wall. It does not exert such an effect when the salt is administered by the mouth, that is, when it has to pass through the stomach before it reaches the intestines. The duodenal tube, however, apparently has reached an efficient practical stage. I make, therefore, the suggestion to test in jaundice and biliary colic the local application of a 25 per cent. solution of magnesium sulphate by means of the duodenal tube. It may relax the sphincter of the common duct and permit the ejection of bile, and perhaps, even permit the removal of a calculus of moderate size wedged in the duct in front of the papilla of Vater. Twenty-five c.c. of the solution as a dose for an adult will bring no harm. For babies the dose should not exceed 4 c.c. The procedure could be developed into a practical useful method.

This simple footnote served as an inspiration for a clinical experimental study on human beings, at first with magnesium sulphate and later with other solutions. I believe that the experimental observations on animals, as conducted by Meltzer, have borne fruit and have opened up a new method of diagnosing diseases of the gallbladder and of the biliary ducts.

This study, conducted for fifteen months in France on men of the U. S. Navy in Base Hospital No. 5, for six months in the clinic of the Jefferson Hospital, in the wards of the Methodist Episcopal Hospital, and in the author's private practice, is a study which has now been made of more than 100 cases, with a total of nearly 1,000 observations. We have proved and are now in a position to demonstrate that Meltzer's assumption is correct—the instillation directly into the duodenum of magnesium sulphate, in solution of various strengths and in various amounts, is followed shortly afterward (within from two to fifteen minutes in most cases) by the evacuation of bile into the duodenum, which can be aspirated by the syringe or the vacuum bottle. Magnesium sulphate appears to be a chemical messenger (hormone) which has the ability not only to relax the sphincter of the common bile duct and thereby drain the bile in the ducts, but also, simultaneously, to cause the gallbladder to be compressed and to empty its contents. Our observations have convinced us of the soundness of the theory of Meltzer's law of contrary innervation as applied to the gallbladder and biliary passages.

Magnesium sulphate, however, is not the only chemical excitant which is capable of producing this action of the biliary apparatus. Our studies have shown that there are others which are capable of a similar action and which will be reported later on. The procedure has gradually taught us that it is possible to segregate and study, cytologically and bacteriologically, not only bile from the gallbladder, but also bile freshly secreted from the liver itself. It has taught us that we can differentiate within reasonable certainty between diseases of the various components of the biliary system, that is, that we can make a differential diagnosis between cholecystitis, cholelithiasis and choledochitis in a more scientifically accurate manner than by any other method yet advanced.

1. Meltzer, S. J.: Am. J. M. Sc. 153:469 (April) 1917.

CAUSE OF INFECTION

For some years we have been aware that the gallbladder or the bile ducts may become infected with pathogenic organisms through several routes: by ascending infection of the common duct directly from the duodenum; by infection by way of the portal vein, and possibly by infection directly from the systemic circulation. All these theories as to the portal of entrance can be attractively argued, but we have been impressed in our study by the frequency with which infection by the avenue of direct ascending infection from the duodenum can be proved. We believe that in the larger number of instances the sequence of events is: a primary source of infection in the mouth (gums [pyorrhea alveolaris]; teeth [apical abscesses]), nasal sinuses and respiratory tract (lungs [pneumonia, especially of the lobular, mixed infection type], capillary bronchitis, etc.), and bronchial tree (simple catarrhal or purulent—large tube—bronchitis), with the swallowing of infected saliva, which sets up, under favorable circumstances, an infective gastritis (this can be proved) or which passes by the stomach, leaving it unharmed, to produce an infective duodenitis (which can be proved) and, ascending thence through the ampulla of Vater, infects the common duct and obtains final lodgment in the gallbladder. The gallbladder, once infected, provides an excellent culture medium for continued bacterial development.

Recognition of this chain of infection was forced home on me by observation, in French waters, of sixteen cases of catarrhal jaundice in American sailors, whose gastric, duodenal and biliary secretions were studied, and the patients treated, by the method herein outlined. Parenthetically, it may be said that the course and duration of these cases of catarrhal jaundice was shortened from an average of thirty-five days in nine cases (treated in the usual symptomatic manner, with bed rest, restricted diet, cholagogues and hexamethylenamin) to an average of seventeen days in seven cases in which topical treatment of the duodenum was undertaken. These cases will be reported later on.

METHOD OF ASPIRATION

After considerable experimenting, we are using at present this method of studying suspected gallbladder and biliary duct cases:

The patient is examined in the fasting stomach state; the mouth is rinsed thoroughly with any good antiseptic solution. We prefer potassium permanganate, 1 grain to 2 ounces of water, followed by a rinse with a weak solution of zinc chlorid. A sterile duodenal tube, fitted with any one of the later modifications of the original metal tip,[2] is passed into the stomach; the fasting gastric residuum is aspirated into a sterile vessel, is measured and grossly observed for consistency, mucus, etc., and then is cultivated and studied chemically for acidities, for bile and for occult blood.

2. All the special apparatus used in this method will be fully described in a later article.

Microscopically, we pay especial attention to *endogenous* epithelium, to polymorphonuclear leukocytes, with or without digested protoplasm, and to the general amount and the morphology of the bacterial flora, differentiating between these and findings which are similar but of *exogenous* origin. With care and the enlargement of personal observation, this differentiation can be made with a reasonable degree of certainty, and it is later checked up by other methods. The stomach is then thoroughly rinsed and the patient is given a glass of water to drink while *slowly* swallowing the tube to the duodenal point, and while lying on the right side, with a pillow or a sandbag elevating the hips.

The tube usually passes into the duodenum within fifteen to forty-five minutes. When it has done so the fact can be determined by the duodenal "tug," the character of the aspirated fluid, and the failure to recover immediately by vacuum aspiration material (water, broth, etc.) which the patient swallows by mouth. Difficulty is occasionally encountered in entering the duodenum because of vagotonic states, or local pylorospasmic states (a reflex from duodenal ulcer, cholecystitis or chronic appendicitis) which can be overcome by an injection of atropin sulphate or by several days' use of belladonna or benzyl benzoate. Once it is sure that the tube is in the duodenum, a barrelful of air is introduced from a 1 ounce capacity syringe to balloon out the duodenal walls from the metal tipped tube (to prevent traumatism of the duodenal mucosa); a connection is made with the *first* sterile aspirating vacuum bottle, and gentle aspiration of the duodenum is begun.

In the fasting duodenal state, and when the physiologic condition is normal, the sphincter of the common bile duct should be closed, and the duodenal contents should be bile free, pearly gray, of syrupy and stringy consistency, fairly transparent, and should have a relatively small amount of flocculent or flaky sediment. In states of duodenitis the gross appearance, the microscopic sediment and the chemical tests differ widely from the normal. When bile is found in the fasting duodenum in sufficient quantities to be grossly visible, we believe that there is either a disturbed physiologic condition (following the analogy of Meltzer's law of contrary innervation) or a pathologic lesion of group organs physiologically related to this intestinal zone.

The first bottle is detached and with its contents of aspirated fluid set aside for bacteriologic, cytologic and chemical examination. We now introduce, by means of a sterile syringe or by the gravity method from a sterile container, from 50 to 100 c.c. of a sterile, 25 per cent. saturated solution of magnesium sulphate, and connect up the tubing to the *second* sterile aspiration bottle and start gentle aspiration. Usually, within from two to ten minutes, bile begins to be recovered, staining light yellow the magnesium sulphate solution still in the duodenum. When the color deepens to a pronounced yellow, the material already collected in the second bottle is decanted into a sterile glass container; the bottle is reattached, and biliary drainage is continued.

It will be observed that the bile flows intermittently, somewhat after the manner in which urine is secreted from the ureters into the bladder in patients in whom cystoscopy and catheterization of the ureters have been performed. Especially is this intermittent flow observed after the bile already in the ducts and in the gallbladder has been drained and bile is being collected as it is secreted from the liver capillaries. We believe that the first bile aspirated is the bile present in the bile ducts—probably only the common duct—because it is lighter yellow, more likely to be transparent, and much less mucoid than the bile seen later. This first bile may be from 10 to 20 c.c. in amount and may require from one to three minutes to aspirate, when a sudden transition appears (seen first in the glass window of the tube) and the bile becomes darker, more viscid and more concentrated and, in normal gallbladders, remains transparent, but is more of a molasses yellow. We believe this type of bile to be that stored up in and delivered from the gallbladder, and when it appears first in the glass window the second sterile bottle is detached and replaced by a *third* sterile collecting bottle into which the bile is allowed to flow until all of this darker bile (more viscid, transparent or turbid) has been collected and is being replaced by a lighter yellow, thinner and usually transparent bile which is aspirated much more slowly and intermittently, and which we believe to be bile freshly secreted from the liver. When this second transition appears, the third bottle is detached and a *fourth* sterile bottle attached to collect the liver bile.

Thus, we believe we are able to collect separately bile from different parts of the biliary apparatus and, by receiving them in separate containers, to study each sample chemically, bacteriologically and cytologically. We have found the bile from the gallbladder to vary in amount from 30 to 100 c.c.; in one case the amount was 166 c.c., the largest quantity in our experience. We believe that the high normal probably should not exceed 75 c.c. (2½ ounces). This variation in amount is to be expected, and would depend somewhat on the length of time since the gallbladder had last emptied itself, partially or completely, in response to normal digestive needs; on mechanical factors that prevent its ready emptying of itself, unassisted, such as inflammatory adhesions, or thick, viscid, sluggishly flowing bile caused by catarrhal conditions of the gallbladder; or the variation may be dependent on the tonicity of the gallbladder musculature, for it is readily conceivable that in overdistended, dilated gallbladders the muscle wall has been so stretched as to possess insufficient tone to propel the contents easily through the cystic and into the common duct.

THE BILE IN PATHOLOGIC CONDITIONS

In pathologic states of the gallbladder, the appearance and the character of the bile are quite different from those in the normal bile described above. We have seen these types:

A. *Choledochitis.*—In choledochitis, the bile first collected is definitely pathologic. It is more viscid, with an excess of flaky mucus, is usually turbid and usually "off" color; cytologically, it contains pus cells enmeshed in mucus, epithelial cells and, occasionally, red blood corpuscles; bacteriologically, cultures may show pathogenic organisms. This type has been encountered in choledochitis with cholecystitis. We have frequently seen choledochitis alone in "simple" catarrhal jaundice, and, in these instances, the usual picture has been of an infection of a lower grade than when the gallbladder is also involved.

B. *Cholecystitis.*—In cholecystitis without choledochitis, the first bile collected is relatively normal, grossly and cytologically, and culturally does not con-

tain pathogenic organisms. But the second bile is grossly pathologic; it is more viscid than normal gallbladder bile; it is turbid, with a flaky or stringy mucus; cytologically it will show inflammatory elements, pus cells, red blood cells (occasionally) and desquamated epithelium, and, bacteriologically, cultures will show pathogenic organisms. Thus far, we have "recovered" streptococci of various strains, staphylococci, *Bacillus pyocyaneus, B. typhosus* and *Micrococcus catarrhalis.* In some cases the cultural findings have been negative, but the catarrhal elements have been pronounced. The viscosity, color and general appearance of the bile in pathologic conditions of the gallbladder will alone suggest the diagnosis. The color varies from a deep, golden yellow, to a dark, molasses yellow, transparent or turbid; to a light, mustard yellow, always turbid, and occasionally streaked with slimy mucus of a greenish color; to various shades of green or greenish black, and, in one case, was of such a tarry consistency as to make aspiration very slow and difficult.

C. *Cholelithiasis.*—In cholelithiasis we find the evidence of cholecystitis, but in two instances we have noted in addition that the bile contained a sediment that was "gritty" or sandlike in consistency, which was seen, microscopically, to be made up of crystals of bile salts. In one case, that of a Filipino mess-attendant with jaundice, we succeeded, by the local use of magnesium sulphate, in recovering three small, faceted gallstones. Later, this patient was operated on by Dr. Robert G. Le Conte, who found and removed one very large calculus, about the size of an English walnut, which was blocking an enormously enlarged common duct, and several small stones, still remaining in the gallbladder.

We have yet seen no instances in which bile freshly secreted and collected from the hepatic ducts after the gallbladder bile has been expressed has given us positive bacteriologic or cytologic findings suggestive of an infection involving or originating in the liver. It may prove possible later to submit differential proof of such a state. It is very likely that the bile freshly secreted from the liver carries a higher bacteriologic potentiality than that from any other part of the biliary apparatus.

The demonstration of biliary stasis (due primarily to functional disorders of the gallbladder, if there are such, and shown in the recovery of bile that is not pathologic beyond being increasedly viscid and concentrated) may, in addition to the organic conditions described, help us better to understand the primary causes of conditions we now call "biliousness" or "bilious attacks."

FUTURE POSSIBILITIES

So much now for the question of diagnosis by this method. In a subsequent paper I shall attempt to enlarge this sketchy preliminary report and to contribute further to our knowledge of the physical properties of bile in its relation to biliary diseases, and to show that there are chemical messengers, other than magnesium sulphate, that will stimulate the flow of bile.

This method of direct access to the biliary apparatus opens up a new field of rational medical treatment for diseases of the gallbladder and of the bile ducts, and in a paper soon to be published I shall report our therapeutic experiences of the past two and a half years.

Considerable success has been achieved in the treatment of cholecystitis, choledochitis, catarrhal jaundice and infective duodenitis by this method of direct medical drainage of the biliary apparatus, and direct disinfection of the duodenum and intestine by the use of various germicidal solutions.

THE INFLUENCE OF INFLUENZA ON MENSTRUATION, PREGNANCY AND PUERPERIUM *

FERNANDO CALDERON, M.D.
Director, Philippine General Hospital; Professor of Obstetrics and Dean, College of Medicine and Surgery, University of the Philippines
MANILA, P. I.

During the first influenza epidemic of 1918, I observed two cases of premature labor in the course of influenza in the Philippine General Hospital. The patients were at first admitted to the medical department and were later transferred to the department of obstetrics. I could not attribute the interruption of pregnancy in these two cases to any causes other than influenza and quinin. Quinin was considered as a possible cause, because the patients, while in the medical department, were given massive doses of the drug which, according to various authors,[1] strongly stimulates the contraction of the uterus, and is even credited with producing abortion.

TABLE 1.—INTERRUPTION OF PREGNANCY DUE TO INFLUENZA IN TWENTY-SEVEN CASES

No. of Cases	Month When Pregnancy Was Interrupted
2	Within the fourth
2	Between the fifth and the sixth
4	In the seventh
19	Between the eighth and several days before the expected date of confinement

During the three months beginning with October of 1918, when the largest epidemic of influenza broke out in the Philippine Islands, thirty-six cases of influenza were admitted to the department of obstetrics. In nine cases, the disease was contracted in the course of the puerperium, and in the remaining twenty-seven it occurred as a complication of pregnancy. The disease was not complicated by bronchopneumonia or lobar pneumonia in five of the former and in seven of the latter cases.

Quinin was not used with any of the twenty-seven pregnant patients, but in spite of this precaution, pregnancy was interrupted even in seven cases in which influenza was not complicated by bronchopneumonia or lobar pneumonia. The elimination of quinin in the treatment limits the possible causes of the interruption of pregnancy in these cases to influenza and makes it highly probable that the disease was the exciting cause of premature labor in my first two cases.

This observation does not, therefore, coincide with the finding of Bar and Boullé,[2] and of Ahlfeld.[3] It confirms the conclusion of Felkin[4] and Müller[5] that influenza exerts a very pernicious influence on pregnancy, and shows that this it does independently of

* Read at the annual meeting of the Manila Medical Society, Jan. 13, 1919.

1. Kurdinowsky: Arch. f. Gynäk. **78**: No. 3, 1906. Lieb, C. C.: Am. J. Obst. **69**:21, 1914. Maurer, A.: Deutsch. med. Wchnschr. **33**: 173, 1907.
2. Bar and Boullé: L'Obstétrique **3**: 193-214, 1898.
3. Ahlfeld: Ber. u. Arbeiten **3**: 131, 1885.
4. Felkin: Tr. Edinburgh Obst. Soc. **17**: 12, 1892.
5. Müller, R.: München. med. Wchnschr. **42**: 952, 1895.

bronchopneumonia and lobar pneumonia which frequently complicated the disease during the last epidemic.

A question of scientific interest is, How is the interruption of pregnancy produced by influenza? Is pregnancy interrupted by the cough and asphyxia that are usually associated with the disease, or does the toxin of the Pfeiffer bacillus act as an ecbolic? The fact that coughing and asphyxia were not prominent symptoms in some of the cases tempts me strongly to believe that the toxin acts directly on the uterus. Its selective action on this organ is further supported by the early appearance of menstruation when the women contracted the disease. I have frequently observed this effect of influenza in the last epidemic.

TABLE 2.—HIGH MATERNAL MORTALITY OF INFLUENZA DUE TO BRONCHOPNEUMONIA AND LOBAR PNEUMONIA

	Cases with Bronchopneumonia		Cases with Lobar Pneumonia		Cases without Complications		Total Number of Deaths
	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal	Non-Fatal	
Influenza in pregnancy.....	0	3	13	4	0	7	13
Influenza in puerperium....	2	0	1	1	0	5	3

The maternal mortality of influenza in my series of thirty-six cases was excessively high. This was due exclusively to bronchopneumonia and lobar pneumonia, because without any of these complications the disease did not cause a single maternal death. In this series the bronchopneumonia complicating the puerperium, and the lobar pneumonia in pregnancy, were fatal in 100 and 76.4 per cent., respectively. The frequent incidence of lobar pneumonia and its high mortality make influenza a grave complication of pregnancy. According to the record of the Philippine General Hospital for 1918, it was more fatal than eclampsia or malaria and typhoid fever in pregnancy.

Influenza also exerted a deleterious effect on the fetus. Among the twenty-seven pregnant women, I had one case of hyperpyrexia in a newly born baby, and seven deaths. The latter includes cases of intrauterine deaths and those which were born within the period of viability and died several hours after birth.

TABLE 3.—MORTALITY OF INFLUENZA, ECLAMPSIA, MALARIA AND TYPHOID FEVER IN PREGNANT PATIENTS ADMITTED TO THE PHILIPPINE GENERAL HOSPITAL IN 1918

	Influenza	Eclampsia	Typhoid Fever	Malaria
Mortality	48.1%	41.1%	16.6%	0%

SUMMARY

1. Influenza exerted a pernicious influence on pregnancy. This pernicious influence was direct and independent of the bronchopneumonia and lobar pneumonia complicating the disease.

2. Influenza caused untimely appearance of menstruation.

3. Lobar pneumonia complicating influenza was responsible for the high mortality of this ordinarily benign disease in pregnancy.

4. Bronchopneumonia produced by influenza caused 100 per cent. mortality when it occurred in the course of the puerperium.

5. Influenza caused a deleterious effect on the product of conception.

THERAPEUTIC APPLICATION OF THE ALTERATION OF BRAIN VOLUME

BY THE INTRAVENOUS INJECTION OF GLUCOSE

RUSSELL L. HADEN, M.D. (DETROIT)
Lieutenant, M. C., U. S. Army
CAMP LEE, PETERSBURG, VA.

The brain and spinal cord lie within a space of fixed capacity formed by the closed cranium and the spinal canal. The pressure within the meninges is determined by two factors, the amount of cerebrospinal fluid present and the volume of the brain. The removal of spinal fluid by lumbar puncture is commonly employed in controlling intraspinal pressure in a large number of conditions. If there is a very marked increase in the bulk of the brain, however, the intraspinal pressure may still be high, even after the maximum amount of spinal fluid has been drained off. It is also true that the withdrawal, when the high pressure is due to the increased volume of the brain, may cause a herniation of the base of the brain through the foramen magnum, with resulting collapse and death.

The one medical condition in which we are most interested in intracranial pressure is cerebrospinal meningitis. The marked increase in pressure in this disease is certainly one of its most serious aspects. There is an increase both in the amount of spinal fluid and in the direct volume of the brain. The increased pressure is often the factor determining the outcome of the disease.

It has long been recognized that lumbar puncture and drainage of the spinal fluid cause, alone, a marked decrease in the mortality rate. This is unusually well shown in the recent report by Olitsky[1] of an epidemic in China in which only a small amount of immune serum was available for treatment. In 104 cases, in which no treatment of any kind was given, the mortality was 84.6 per cent.; in 346 cases in which lumbar puncture and drainage of the spinal fluid were the only treatment, only 54.1 per cent. of the patients died. The removal of bacteria and toxic material must certainly have had some effect, but it seems most probable that the greatest good was due to the necessary fall of intracranial pressure resulting from the withdrawal of spinal fluid.

The power to control the volume of the brain should be of the greatest help in the treatment of meningitis. The spinal fluid removed must be replaced, in part at least, by immune serum, thus nullifying the good effects of the reduced pressure resulting from the removal of the fluid. In those cases of meningitis in which patients develop block, either at the base of the brain or at some point along the spinal cord, they quickly show the effect of increased intracranial pressure, and we have had no way of decreasing the pressure except by occipito-atlantoid puncture.

Recently, some experiments have been reported by Weed and McKibben[2] which show that the bulk of the brain can be controlled by a change in the concentration of certain elements in the blood stream. These observers have shown that the intravenous injection of hypertonic solutions of certain electrolytes and

1. Olitsky, P. K.: Experiences with a Recent Epidemic of Meningococcic Meningitis Among a Chinese Civil Population, Arch. Int. Med. 23: 380 (March) 1919.
2. Weed, L. H., and McKibben, P. S.: Am. J. Physiol. 48: 512 (May) 1919.

crystalloids causes a transient rise in the pressure of the spinal fluid, followed by a marked fall, which persists for a considerable period of time. On the other hand, the use of hypotonic solutions of the same substances causes a persistent rise in the intraspinal pressure. The injection of isotonic solutions causes no change in pressure.

The substance of election for intravenous administration in this connection is glucose. This can be used in very concentrated form, is cheap, and is not toxic. In addition to its use for changing the osmotic value of the blood, it is utilized by the tissues as a food, and also acts as diuretic. Litchfield[3] has emphasized the value of glucose administered intravenously in various diseased conditions. He shows that it combats dehydration, supplies energy and spares nitrogen. It seems probable that the immediate effect produced by the intravenous administration in the cases reported by Litchfield was due to the relief of cerebral edema and to the consequent decreased intracranial pressure brought about by the hypertonic solution.

Case 1, recorded below, is reported because the intravenous injection of a 25 per cent. glucose solution was probably a factor determining the outcome. And the vital thing was presumably the decrease in the intracranial pressure brought about by a change in the bulk of the brain.

We have used a 25 per cent. solution of glucose, but a 40 per cent. solution can be used perfectly well. Any pure glucose may be used. It should be made up in freshly distilled water and autoclaved or boiled. It is not necessary that a fresh solution be made up each time it is given. A stock solution will keep a considerable length of time. The injection should be made slowly, so that one hour is consumed in administering 250 c.c. of a 25 per cent. solution.

The first case reported was the last case of epidemic meningitis in which treatment was given at this hospital. We had planned, if other cases occurred, to treat them as a routine with glucose solution; but we did not have the opportunity. We suggest as a plan of treatment the intravenous injection of 25 per cent. glucose solution every twelve hours, from the onset of the disease until there is no longer any evidence of increased intracranial pressure, these injections to be in addition to the specific treatment, of course. If immune serum is given intravenously, the glucose solution may be given at the same time.

REPORT OF CASES

Case 1.—A man, aged 21, white, admitted to the hospital, February 10, for epidemic cerebrospinal meningitis, was very ill from the onset. He at first improved under treatment, and was given 485 c.c. of immune serum intraspinally and 300 c.c. intravenously. February 21, the spinal fluid, which up to this time had flowed freely, could be obtained only drop by drop, a total of 5 c.c. being obtained. The rigidity of the neck increased, and the patient became irrational and incontinent. The next day he was in coma, and had epistaxis, rapid stertorous respiration and an irregular, rapid pulse. It did not seem possible that he could live more than a few hours. He was given 50 c.c. of immune serum, with 200 c.c. of 25 per cent. glucose solution, intravenously. There was very marked improvement. The next day he was given a total of 550 c.c. of glucose solution without serum. He became rational and made an uneventful recovery without further treatment of any kind.

3. Litchfield, Laurence: Glucose Intravenously as a Therapeutic Measure, J. A. M. A. 71: 503 (Aug. 17) 1918.

In conditions other than meningitis, cases have been observed in which the intravenous administration of glucose has evidently had a direct cerebral action. In severe toxemias with marked general depression, a cerebral edema of varying degree is likely to develop. In the following case the abrupt change in the mental condition of the patient during the course of glucose administration could hardly be due to other than a change in the brain tissue.

Case 2.—A man, aged 22, white, was admitted to the hospital, July 14, 1918, for measles. His temperature on admission was 103.3, pulse 88, and respiration 20. The examination of his lungs was negative. He coughed excessively, but showed no signs of a localized infection until the 18th, when there was a pulmonic consolidation at the right base. The same night the patient became delirious, and remained so the next day. On the 21st he lay in bed in a stupor, and would not answer when spoken to. The signs in his chest had become very diffuse. It did not seem possible that he could recover. His temperature had continued high from the onset until the 18th, but on the 19th and 20th was subnormal. His pulse was recorded as above 100 only once, and the respirations averaged 20. The afternoon of the 21st, as a last resort, he was given 300 c.c. of 25 per cent. glucose solution intravenously. After the injection had proceeded for one hour, he began to arouse, and by the time the injection was finished he was clear mentally, was oriented and answered questions readily. He made an uninterrupted recovery except for an intercurrent otitis media. He had no further treatment.

SUMMARY

1. Increased intracranial pressure is a very important factor in certain diseases, especially meningitis.
2. The alteration of brain volume of intravenous injection of hypertonic glucose solution can be made use of to control the pressure.
3. The intravenous injection of 25 per cent. glucose solution seems advisable as a routine measure in the treatment of meningitis.
4. In the two cases reported, the direct cerebral action of the glucose seems demonstrated.

HORSE ASTHMA FOLLOWING BLOOD TRANSFUSION

REPORT OF CASE

MAXIMILIAN A. RAMIREZ, M.D.
NEW YORK

Although the experimental demonstration of passive anaphylaxis has been clearly established by Nicolle, Otto, Friedmann, Richet and others, I wish to call attention to its importance in actual practice and suggest the necessity of including, in the routine examination of a prospective donor for blood transfusion, questions relative to the various anaphylactic manifestations.

REPORT OF CASE

H. T., man, aged 35, waiter, white, born in Greece, who had been five years in this country, underwent blood transfusion for primary anemia. He had never had asthma, hayfever, bronchitis, urticaria, angioneurotic edema, or any other condition which might indicate a hypersensitiveness to some foreign protein. The family history was negative.

Two weeks after receiving 600 c.c. of blood, the patient left his home and went for a carriage ride in Central Park; almost immediately on entering the open carriage, he experienced some difficulty in breathing which within five minutes developed into a definite, clear-cut attack of bronchial

asthma. The patient returned to his home, where a physician administered epinephrin hypodermically, bringing the paroxysm to a rapid end. That evening he coughed considerably, but feeling quite well in the morning, ventured for a short walk in the park. He was again seized with a severe attack of asthma.

It was after this attack that I first saw the patient and tested him against a large number of food and bacterial proteins, pollens, etc., with negative results, finally, however, obtaining a positive reaction to horse dandruff, measuring 1.5 cm. in diameter and reacting as high as a 1:20,000 dilution.

On learning of the transfusion which occurred but two weeks previously, and his negative previous history, I located the donor, who readily admitted being subject to a persistent and long-standing asthma and bronchitis. On testing the donor I obtained a reaction to horse dandruff measuring 6 cm. in diameter, and reacting as high as a 1:50,000 dilution.

COMMENT

1. The transmission of anaphylactic or reaction bodies should be borne in mind in choosing a donor for blood transfusion.

2. The presence of these "anaphylactic bodies" in the donor's blood caused no untoward effects on the recipient during or immediately following the transfusion.

3. This phenomenon did not occur in another patient to whom this donor had previously given blood, although a larger quantity of blood was injected (800 c.c.).

2 West Eighty-Eighth Street.

GENERAL HEALTH ACTIVITIES AND THEIR EFFECT ON TUBERCULOSIS MORTALITY *

GEORGE THOMAS PALMER, M.D.
SPRINGFIELD, ILL.

In preventive medicine, it is generally assumed that the discovery of the causal organism and the means of transmission of a communicable disease will be followed by a definite reduction in its prevalence and mortality, and that this reduction is greatly increased by an intensive campaign of popular education. This has been our experience with typhoid fever, yellow fever, malaria, diphtheria and other diseases, and it was the experience contemplated in dealing with tuberculosis. It has now been almost forty years since the identification of the tubercle bacillus, and almost thirty years since the first organization was created to combat the disease by means of popular education. For fifteen years that educational campaign has been intensified by the National Tuberculosis Association, which, with its affiliated societies, has become the largest and strongest extragovernmental health agency the nation has ever known. It is interesting at this time to consider what progress has been made in dealing with this most widespread of diseases and to attempt to determine, if possible, the means by which the very striking results have been accomplished.

Experience has taught us that tuberculosis cannot be measured by the standards which apply to other contagious and infectious diseases. The attempts to develop preventive and curative vaccines or serums from the tubercle bacillus, such as we have produced in diphtheria and typhoid fever, have resulted in failure and disappointment. We have been forced to conclude that active tuberculous disease is not the result of a simple infection. Likewise, our efforts to control the disease by the restriction of public spitting, based on the fact that bacilli are commonly found in the sputum, have not given results which inspire any high degree of confidence. Tuberculosis has resisted our efforts to deal with it as a simple question of infection or contagion.

The relationship between infection and disease has been shown to be very remote. It is accepted that acute tuberculosis is not caused by any single organism acting alone. Dormant infection is so general that perhaps 80 per cent. of adults may be classified as "tuberculosis carriers." The development of the disease, after infection, is dependent on some factor or factors which reduce individual resistance, and these factors are to be found in every phase of the social life of the individual or of the community. Obviously, in the light of our present knowledge, victory over tuberculosis cannot be expected to result from warfare against the tubercle bacillus, however thoroughly that warfare may be conducted. Our present belief must be that success will come through our learning how to live with the tubercle bacillus rather than in striving to avoid initial infection.

I do not mean to convey the idea that we should abandon in any way the means we are now employing to prevent the spread of infection. Open cases should be isolated, coughing and spitting should be restricted, and increased pains should be taken to protect children from contact. I am profoundly impressed that by these means alone we shall not master the disease, and I am frankly doubtful if such means have been the important factors in achieving the success which has crowned the efforts of tuberculosis agencies in the past.

As to the success in the past, there can be no doubt. During the twenty years following the establishment of the first volunteer tuberculosis association, tuberculosis mortality decreased from 238 per hundred thousand of population to 166 per hundred thousand, or a decrease of 30.25 per cent., while a comparison of five-year periods during the past fifteen years shows a tuberculosis decrease of 22.2 per cent.—a more gratifying showing than that of any other communicable disease for which science had not provided a specific preventive, with the single exception of scarlet fever. With such a showing, the battle against the germ, which has characterized our avowed program in the past, seems to have fully justified itself.

But, a further observation of statistics causes us to become somewhat skeptical. During the twenty years from 1872 to 1891, the twenty years preceding the nation-wide educational movement and including ten years preceding the discovery of the tubercle bacillus, the mortality from tuberculosis decreased from 339 per hundred thousand of population to 245 per hundred thousand, or a decrease of about 27.5 per cent. In fact, Hoffman has pointed out, from such statistics as were available, that tuberculosis mortalities have steadily decreased for a period of over a hundred years, from 1812, when the rate in New York, Boston and Philadelphia was close to 450 per hundred thousand. This steady decrease in mortality, which had assumed interesting proportions years before the discovery of the bacillus, obviously cannot be attributed to the battle against the germ, and yet it seems readily

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explainable and in perfect harmony with our present conception of the tuberculosis problem.

It is now generally agreed that tuberculous disease in the adult is usually due to childhood infection and that infection may remain relatively harmless throughout life unless the resistance of the individual is lowered. In short, tuberculous disease is the result of infection plus some other factor of lowered vitality or impaired health. Hence, the causal factors of tuberculous disease become myriad in number and every factor which tends to promote individual or community health becomes a definite factor in the prevention of tuberculosis. With this idea in view, we can reasonably account for the decrease in tuberculosis mortality, extending throughout the past century and assuming more gratifying proportions during the past few decades.

For a hundred years living conditions have steadily improved. Means of cleanliness have become readily available, fear of fresh air and night air have been abandoned together with our more absurd superstitions. Sewage disposal, water supply, safe milk and food supplies, ventilation and basic factors in health have gradually come to receive serious consideration. Childhood, the crucial point in health control, has been safeguarded by better obstetrics, better care of mother and infant and more recently by school sanitation and health activities among children based on the sane doctrine that sound bodies are as essential as cultivated minds.

Intelligent efforts in the prevention and suppression of communicable diseases—some of them notorious forerunners of tuberculosis—have made a decided impression on the mortality of the disease, as have activities in the field of housing, the prevention and relief of poverty, and other kindred health and social movements.

Thus, it appears that improved personal and community life, and general health and social activities which have gradually gathered momentum during the past century, have had more to do with reducing the tuberculosis death rate than the attack we have made on the bacillus. In fact, I am ready to believe that the improvement of general health through better milk supplies has done as much to stay the ravages of tuberculosis as anything we have done to control bovine infection, and that the effect of the general improvement of housing has been more far-reaching than our efforts to prevent disease by supervision of premises infected by the tubercle bacillus.

In attributing this gratifying showing in reduced tuberculosis mortality to the efforts made in general health, and social fields, we must not infer that the antituberculosis organizations have in any way failed. In fact, national, state and local tuberculosis associations have not only done their part in their own special field, but they have contributed to general health to an astonishing extent. In thousands of instances, these tuberculosis associations have been the pioneers in all health activity and, while they have placed proper emphasis on their own problem, which had been so long neglected, they brought with them the first public health nurses, the first child-welfare work and the first popular interest in health which served to stimulate activities in other lines, and to strengthen the hold of the governmental agencies on the public. If their policy of a battle against the germ was narrow, it was no narrower than that of others in a day of bacteriologic enthusiasm, and their practical performance has been big and broad and helpful.

In conclusion, I should like to have it understood that I am dealing with only one phase of a tremendously big subject; that I am questioning, as every student is questioning, the various factors which have played a part in the most complex of medical and social problems, and that I do not minimize the importance of the special tuberculosis activities or the unquestioned good which has resulted from such agencies as dispensaries, sanatoriums, better medical training and the specialized educational campaigns which must always be employed in a successful warfare against the disease.

ABSTRACT OF DISCUSSION

Dr. L. L. Lumsden, Washington, D. C.: I am impressed with the position which I understand Dr. Palmer takes in regard to our most effective attack on the great problem of tuberculosis being through the application of general health activities. One of the large life insurance companies a few years ago made a careful statistical study of the incidence of certain diseases among its policy holders and found from the data that among persons under comparable conditions, economical, social, age and so on, those who had had typhoid fever were in the five-year period following the attack of typhoid fever much more likely to develop obvious tuberculosis than were those who had not had typhoid fever within the same period. It appears highly probable that in preventing other diseases such as typhoid fever, hookworm disease and malaria, which may be controlled by general sanitary measures, we are apt to make a definite impress on the tuberculosis rate. Economic conditions appear to influence, almost in mathematical ratio, the tuberculosis rate. Carefully compiled statistics in recent years showed that among government employees the tuberculosis rate was inversely proportionate, with remarkable regularity, to the salary scale. In the field of health activities it seems to me that more may be accomplished for immediate reduction of the tuberculosis rate through general hygienic measures and specific measures for the control of other infections than through measures directed specifically toward the control of tubercular infection itself.

Dr. Juan Guiteras, Havana, Cuba: It would be worth while to take into consideration the development of the idea of contagion in the times preceding the discovery of the tubercle bacillus in the matter of contagion. The idea of contagion and the possible transmissibility of tuberculosis did not begin at the time of the discovery of the tubercle bacillus, and it is possible that the gradual elimination of this disease for years back began with the more or less popular idea that it is contagious, and it is worth while finding out whether this did not decrease the number of cases, or result in a diminution of the mortality in those countries in which the idea of contagion was more prevalent. I would suggest that a study be made of the statistics concerning tuberculosis in Italy, which was one of the countries in which the idea of the transmissibility of the disease, or its contagious nature, manifested itself early.

Dr. John P. Davin, New York: In connection with the theory concerning the scale of wages, the earnings and the decrease of tuberculosis as the result of a raise in wages: The better paid workman is on this account better able to provide for his needs, and the better able he is to do this the better he can live and the better citizen he should become. I have been greatly impressed by the members of the American Federation of Labor whom I have met. They are as a body a very high class of men, but the great trouble they have to overcome today is that an increasing price of the necessities of life invariably goes in excess of an increase in wages. Unless we can correct this disproportion so that an increased wage will produce or purchase something more than what it does today, we are just as badly off as we were before wages were raised. Under these circumstances I

think that in addition to studying the surroundings and improving the living conditions of the wage earner, and in attempting to eliminate tuberculosis by improving such earnings and such living conditions, we must study as well their sources of supplies; how much they have to pay for rent, how much they have to pay for food, and how much they have to pay for clothing and other necessities of life.

DR. W. C. WOODWARD, Boston: Apropos of the relation of wages to tuberculosis, we have to bear in mind that the men who receive the higher wages are presumably physically and intellectually the more capable men, and the question is not altogether whether the higher wage enables a man to avoid tuberculosis but also whether tuberculosis does not prevent him from earning the higher wage.

DR. A. T. MCCORMACK, Bowling Green, Ky.: The problem presented here, that of tuberculosis, and the solution suggested by Dr. Palmer, is extremely gratifying to everybody interested in this subject. I think it is the history of all definite movements for the relief of a definite condition in public health matters that those interested approach it, first, as experts in the particular line, and then gradually spread out over more territory and begin to take in collateral problems until eventually every worker is interested in the general problem. In Panama we found out early that respiratory disease of the laborers was one of our greatest problems. A very interesting phase of the matter was the relative incidence of the respiratory disease, which was well known in the old Spanish towns, a section of the old residential part of the Canal where the houses had not been torn down until last year. They were occupied by very poor, squalid inhabitants, and were very bad quarters, a very large number of individuals being housed in one room as compared with the newer quarters built under the plans suggested by General Gorgas, and where really decent quarters were provided. These people all received the same wages. Yet, the respiratory diseases of old Spanish towns were 900 times as frequent as in the modern town. The individuals worked together on the locks and in the mechanical division, had the same kind of work and bought their food largely from the same commissary. In approaching this problem in Kentucky, where 23 per cent. of our rejections in the draft were on account of tuberculosis, we realized that it would be impossible to have enough sanatoriums to accommodate half of the cases of tuberculosis. We are attempting to approach the problem under the supervision of the county officers and with the general assistance in every county of the local medical organization, the establishment of regular hours in a tuberculosis dispensary and having a trained public health nurse follow up the cases, using the comparatively small number of beds in our sanatoriums as schools for the tubercular and attempting at the same time to broaden the education in such a way that all the individuals will be taught the ordinary lessons of how to prevent tuberculosis. I have been very much interested in the model Lincoln School in Lexington where they are opening free air schools on the top of the schoolhouse for children who are tuberculous, or for those who have shown symptoms of tuberculosis. It is rather poor policy that we are only taking care of those who have defects and permitting the well to be in the same class rooms and school rooms with the affected ones, and not giving them the benefit of fresh air.

DR. GEORGE THOMAS PALMER, Springfield, Ill.: Dr. Lumsden and Dr. Woodward have pointed out a very important question in the handling of the tuberculosis problem. As physicians and health officers, I believe that we feel a little jealous at times of the invasion of our field by social agencies and yet when we consider the social aspects of the disease and particularly the relationship between wage and tuberculosis, we realize that we can never make big progress in the solution of the problem without a closer touch with charity organizations and with social agencies generally. As a matter of fact, I think that one of the most important steps in the solution of the tuberculosis problem is to bring about a closer appreciation on the part of physicians and health officers of the intricate social problems involved and on the other hand to develop a closer conception on the part of social workers of the difficulties encountered in meeting the medical side of the problem. Tuberculosis is largely a social problem. In its solution we have to consider proper food supplies, proper housing, the comfort and happiness of the individual. Freedom from worry and care and anxiety necessitated a very much closer relationship than now exists between social agencies, public health officials and the medical profession. I was very glad, indeed, to have Dr. McCormack call attention to the lack of facilities for the care and protection of the well child. In our public health work and particularly in tuberculosis, we will not secure satisfactory results by making provision only for the physically deficient child and neglecting the individual in whom disease can be prevented. In dealing with tuberculosis, perhaps more than with any other disease, we realize that disease prevention is more important than disease suppression and that health promotion is an infinitely more important matter than either.

DR. W. C. WOODWARD, Boston: I hope that nothing I have said is going to connect tuberculosis with charity. A man who has tuberculosis or any other disease, and needs relief, ought to be able to get relief without being looked on as a mendicant or a pauper. As a citizen of the commonwealth or a person within the protection of the commonwealth, he is entitled to relief as a matter of moral right—or else our boasted civilization is a sham and a pretense.

New and Nonofficial Remedies

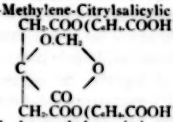
THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CHLORAZENE (See New and Nonofficial Remedies, 1919, p. 137).

The following dosage form has been accepted:

Chlorazene Surgical Gauze.—Gauze impregnated with and containing approximately 5 per cent. chlorazene.

NOVASPIRIN.—Methylene-Citrylsalicylic Acid.—



$CH_2COO(C_6H_4COOH)$.—

A compound of anhydro-methylene-citric acid and salicylic acid.

Actions and Uses.—See New and Nonofficial Remedies, 1919, p. 250, under Acid Derivatives of Salicylic Acid (Acetylsalicylic Acid Type).

Dosage.—1 Gm. (15 grains) several times daily.

Manufactured by the Winthrop Chemical Company, New York City. U. S. patent No. 858,142 (June 25, 1907; expires 1924). U. S. trademark No. 62,613.

Novaspirin is prepared by the action of methylene citric acid dichloride on salicylic acid.

Novaspirin is a grayish-white odorless, crystalline powder, permanent in the air, having a faint acidulous taste. It is almost insoluble in water; soluble in alcohol; less soluble in ether or chloroform. On heating Novaspirin with caustic alkalies, salicylate is formed, and on adding diluted acid to the alkaline solution, crystals of salicylic acid are separated. On long standing in presence of water or more quickly with alkalies, Novaspirin is split into its components. When heated in a dry test tube Novaspirin melts, and at higher temperatures formaldehyde and salicylic acid are liberated. The salicylic acid sublimes and is deposited on the cooler portions of the tube. Novaspirin when decomposed yields 62 per cent. of salicylic acid. After drying over sulphuric acid to constant weight, Novaspirin melts at 153-154 C. A saturated, aqueous solution of Novaspirin (prepared without heat) does not produce a violet color with ferric chloride solution.

Incinerate 1 Gm. of Novaspirin; not more than 0.1 per cent. of ash remains.

Dry 1 Gm. of Novaspirin over sulphuric acid; not more than 5 per cent. of loss results.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 27, 1919

NEW OBSERVATIONS ON LIPOIDS

The existence of a group of complex fats or fatlike compounds, long ago recognized in lecithin and more recently designated as phosphatids or phospholipins, has been the occasion for much speculation and even some semiscientific therapy in relation thereto. The facts that certain of these chemically obscure organic phosphorus compounds seem to be present in every living cell, that they abound in the nervous structures in large proportions, that they appear to play a part in fat metabolism and transport, that they are concerned in hemolysis and coagulation of the blood—such information has tended to fix attention on the word phosphatid and what it represents.[1] It is not surprising, therefore, that a widespread search has been made to locate and identify the phosphatids in different tissues and structures of both animal and vegetable origin.

The outcome of these investigations has been to make it seem more than probable that at least two well defined groups of these lipoids exist. In the type represented by the word lecithin, the earliest to be recognized as a chemical entity, the molecule is believed to represent a structure in which fatty acid radicals, glycerol, phosphoric acid and the nitrogenous base cholin are bound together in organic union. The hitherto isolated components of kephalin, a closely related lipoid, are phosphoric acid, glycerol, aminoethyl alcohol, and stearic and linoleic acids. Under the name cuorin Erlandsen[2] described what he believed to be a third specific lipoid; and the list of claims is by no means exhausted with this enumeration.

If one may judge from the history of medical biochemistry, etymological investigations are more easily conducted than chemical research. At any rate, the introduction of descriptive names has proved to be a readier means of disposing of a difficult problem in identification than is the structural analysis that leads to a positive result. The lipoids have heretofore been classed largely according to their solubility, with the result that many products of unlike composition have been obtained.

Largely through the labors of Levene and his co-workers it has been demonstrated that instead of a multiplicity of lipoids varying in composition with the variation of the organ which furnishes them many of the nondescript phosphatid products are in reality composed of a mixture, in varying proportions, of lecithin and kephalin, each having the structure required by theory. Levene and West[3] have shown that the so-called lecithin of the egg yolk is a mixture of lecithin and kephalin. Levene and Komatsu[4] have recorded a similar finding in the case of the lipoids of the heart muscle; and they[5] have furnished evidence that so-called cuorin is presumably a mixture of kephalin and fragments of the latter. There is reason to believe that the supposedly characteristic phosphatids from other sources in the body will be similarly resolved into lecithin, kephalin and their derivatives or mixtures of them. If so, the results of such painstaking researches will dispose of the contention, essentially supported by continental biochemists,[6] that individual organs of the same animal contain specific phosphatids and that the same organs of different species also contain distinct phosphatids. We are, rather, prepared to believe with Levene and Komatsu[4] that the number of individual lipoids will be found to be rather limited, and that practically all animal organs contain the same lipoids.

ELIMINATION OF THE PHYSIOLOGIC PRODUCTS OF MUSCULAR WORK

Although the physiology of exercise has long interested scientific investigators, its importance has become greatly augmented of late through the demand for greater personal efficiency and a larger industrial output. Fatigue sets a limit to work. Greater working capacity can be attained only through an understanding of the nature of fatigue, so that it can be decreased as far as possible. For many years it has been understood that muscular activity is attended with the production of substances of an acid nature. When they accumulate in the contractile tissues, the efficiency of the muscle is soon impaired; and the satisfactory continuance of muscular performance depends on the removal or the destruction of the acid "fatigue products."

In view of this aspect of muscular activity, it is conceivable that hard work will result in the discharge of acid products into the circulation to an unusual degree. How are they disposed of? Are they oxidized, or neutralized, or excreted as such? It is now known that the blood maintains a constant reaction within very narrow limits, thanks to the remarkable devices

1. The history of the subject is detailed by H. Maclean in his volume: Lecithin and Allied Substances: the Lipins, Monographs on Biochemistry, New York, Longmans, Green & Co., 1918.
2. Erlandsen, A.: Ztschr. f. Physiol. Chem. **51**: 71, 1907.
3. Levene, P. A., and West, C. J.: J. Biol. Chem. **33**: 285, 1918; **34**: 175, 1918.
4. Levene, P. A., and Komatsu, S.: Lipoids of the Heart Muscle, J. Biol. Chem. **39**: 83 (Aug.) 1919.
5. Levene, P. A., and Komatsu, S.: Cephalin, VI, The Bearing of Cuorin on the Structure of Cephalin, J. Biol. Chem. **39**: 9 (Aug.) 1919.
6. Fränkel, S., and Linnert, K.: Biochem. Ztschr. **24**: 270, 1910.

for the preservation of neutrality in the organism. Marked alterations in the acid or base forming properties of the diet do not essentially affect the reaction of the blood. Hastings[1] has noted that, although exercise may produce a diminution of the bound carbon dioxid of the blood plasma, the depletion does not progress to such a point, ordinarily at least, that the reaction of the plasma is significantly altered.

The real response to muscular activity is to be observed in the respiratory exchange and in the urine. The output of carbon dioxid through the lungs is an immediate outcome of work. The kidneys excrete the excess of acids of nonvolatile character. In his recent studies, Hastings[1] has found that the urine of men engaged in manual labor tended to be of a slightly higher acidity than that of men at rest. The urine of physically strong men was regularly slightly more acid after work than before. The urine of physically weak men showed wide variation in its reaction from day to day. When the muscular activity was such that the subject was intensely fatigued, there was invariably an increase in the hydrogen-ion concentration of the urine.

Talbert[2] has recently reported a similar change in the reaction of the perspiration during exercise. Hence the conclusion seems inevitable that vigorous muscular activity results in the production of acid products of such a kind or in such degree that they call on some mechanism other than the carbon dioxid excreting power of the lungs to eliminate them and preserve the physiologic reaction of the tissues intact.

THE PROBLEM OF PROTEIN

Ever since the war threatened the integrity of the world's food supplies, the advocates of physiologic economy in nutrition have found a more sympathetic hearing than in the olden days of peace and plenty. Some of the most energetic opponents of the "low protein" diet, at one time advocated by Chittenden, have almost completely reversed their judgment on this subject. They had seemingly found their fears dissipated by the experience of thousands of persons who were compelled by the dire necessities of food shortage to live on scant rations, particularly so far as the foods richest in protein were concerned. The reports from Germany and the central empires regarding the effect of the stringent regimen on the health and morale of the people had an encouraging ring in the early years of the great conflict. Furthermore, the extensive experiments on undernutrition which Benedict and his collaborators conducted on volunteers from the International Y. M. C. A. College at Springfield, Mass., have been interpreted to indicate a surprising adjustment of the depleted human individual to a lower level of metabolism.

1. Hastings, A. B.: An Investigation of Changes in the Blood and Urine Resulting from Fatigue, Pub. Health Rep. 34: 1682 (Aug. 1) 1919.
2. Talbert, G. A.: Am. J. Physiol. 49: 127 (June) 1919.

Some of these contentions have already been commented on in THE JOURNAL. English physiologists have inclined, during the war, to accept Bayliss' dictum: "Look after the calories and the proteins will look after themselves." Nevertheless, the Food (War) Committee of the Royal Society of London has been cautious in its published conclusions. As a rule, the British report notes, one may say that the protein in the diet of the "average man" should not fall below 70 or 80 gm. (from 2½ to 3 ounces) a day. The protein should be derived from a mixed diet and should include, if possible, a certain amount of protein of animal origin.[1]

The basis for many of the deductions regarding the effect of parsimony in diet has been derived from metabolism experiments on man or from statistical and other reports regarding the "general health" of large groups of persons. More recently, a novel prominence has been given to experiments concerning nutrition conducted on the smaller animals. Some of these, like the rat, have a comparatively short span of life, so that the various phases of growth and adult existence can be observed within a period of months rather than years. Through the aid of this modern mode of physiologic dietary analysis, the adequacy or debilitating effect, respectively, of various regimens can be observed at different periods in the life cycle. When months correspond with years of human existence, the basis for observations is somewhat safer than that furnished by a few days' or weeks' records of man. McCollum and his collaborators[2] who have had large experience in this domain insist that the results of experiments with grown men restricted to experimental diets for a few weeks or months do not form a safe basis for drawing conclusions as to the quality of the foods employed. Certain deductions may be warranted from general observations on children living on faulty diets, and important deductions may safely be drawn from the experiences of large groups of people living on more or less restricted lists of foodstuffs. Beyond this, it is maintained, we must be guided in human nutrition by the results of animal experimentation, in which the conditions can be made sufficiently rigid to bring into stronger contrast the faults of certain types of diets as contrasted with others.

If the validity of this standpoint, which so many interesting recent researches have tended to substantiate, is admitted, we may be prepared for McCollum's conclusion regarding the debated protein factor. He says:

All our experience with diets of low protein content have indicated that animals do not remain in a state of optimum

1. Report on the Food Requirements of Man and Their Variations According to Age, Sex, Size and Occupation, Food (War) Committee, Royal Society, London, March, 1919, 19 pp.
2. McCollum, E. V.; Simmonds, N., and Parsons, H. T.: A Biological Analysis of Pellagra-Producing Diet, VI, Observations on the Faults of Certain Diets Comparable to Those Employed by Man in Pellagrous Districts, J. Biol. Chem. 38: 113 (May) 1919.

well being even when the content of protein is sufficiently high to maintain in certain individuals the initial body weight over as much as 10 per cent. of the normal span of life. We believe that health and vigor are promoted by a liberal intake of protein of good quality better than by any diet in which there is a tendency toward parsimony with respect to this dietary factor. It should not be lost sight of, however, that there are other factors in nutrition which are of equal importance with protein, and that if the optimum well being is to be attained the diet must be rightly constituted with respect to all its parts. In addition to this the prompt elimination of the fecal residues is essential and is a great relief to the tissues of the entire body.[2]

This is a sane hypothesis for the dietary program of the reconstruction period on which the civilized world is now entering.

RELATION OF SPINAL PUNCTURE TO THE PRODUCTION OF MENINGITIS

It has become an accepted practice to make lumbar puncture in suspected cases of meningitis. Meningeal symptoms often occur in acute infectious diseases, and it is not uncommon to make diagnostic puncture in such cases. In general it has seemed advisable that spinal puncture should be made at the earliest possible moment, without any hesitancy, even when there may be some reason for doubt as to the presence of meningitis. There are many reasons assigned for such action: Thus, it is generally assumed that spinal puncture can do no harm, and that examination of the spinal fluid offers a ready and trustworthy means of diagnosis, while symptoms cannot always be relied on. Furthermore, experience has demonstrated that meningitis treated early promises a better outcome than when treated late. Consequently it is not uncommon to inject serum intraspinally at the same time the diagnostic puncture is made. Spinal puncture is often made, of course, in what seem unmistakable cases of meningitis, and yet the spinal fluid may prove to be normal, but in such cases actual meningitis sometimes develops after the puncture. The question has therefore been raised by Weed, Wegeforth, Ayer and Felton[1] whether the withdrawal of cerebrospinal fluid during a septicemia is a factor in the production of meningitis. These observers found that in animals the removal of cerebrospinal fluid during an artificial septicemia may be followed by a localization of the infection in the meninges. According to a recent report by Wegeforth and Latham,[2] fifty-five of ninety-three cases, in which meningitis was suspected, and in which lumbar puncture was done, yielded a clear fluid; among these patients, however, were six who at the time of puncture gave positive blood cultures, five of whom subsequently developed meningitis.

The close analogy between the clinical and experimental observations cited indicates that there may be dangers in lumbar puncture which should restrain physicians from routine punctures in acute infections. Wegeforth and Latham recommend that careful blood cultures be made before the puncture, and "that in acute diseases, in the absence of definite signs of irritation of the central nervous system, lumbar puncture should be avoided unless it is first shown that the blood is free from infection." In cases of meningococcus sepsis, they are of the opinion that the logical procedure is to treat the blood infection by intravenous administration of serum, and to avoid spinal puncture until signs of involvement of the meninges are present. Under ordinary circumstances, however, the recognition of meningococcus sepsis is rather difficult, and since delay is dangerous the rational procedure would be to combine the intravenous and intraspinal treatment. The objection to the intraspinal introduction of serum in cases in which the spinal fluid is not pathologic is based on the observations of Flexner and Amoss[3] on poliomyelitis, and of Austrian[4] on meningococcus sepsis, to the effect that the introduction of serum favors the localization of the blood infection in the meninges; but then again this has been recently disputed by Amoss and Eberson.[5]

The precautions recommended by Wegeforth and Latham are of importance in acute general infections. Nevertheless, until we have better means of differentiating between the various forms of meningitis, it would not appear advisable to delay spinal puncture unduly.

1. Weed, L. H.; Wegeforth, P.; Ayer, J. B., and Felton, L. D.: The Production of Meningitis by Release of Cerebrospinal Fluid, J. A. M. A. **72**: 190 (Jan. 18) 1919.
2. Wegeforth, Paul, and Latham, J. R.: Lumbar Puncture as a Factor in the Causation of Meningitis, Am. J. M. Sc. **158**: 183, 1919.
3. Flexner, Simon, and Amoss, H. L.: Chemical Versus Serum Treatment of Epidemic Meningitis, J. Exper. M. **23**: 683, 1916.
4. Austrian, J. R.: Experimental Meningococcus Meningitis, Bull. Johns Hopkins Hosp. **24**: 183, 1918.
5. Amoss, H. L., and Eberson, F.: Experiments on the Mode of Infection in Epidemic Meningitis, J. Exper. M. **24**: 605, 1919.
6. These statistics and others here referred to are taken from Vaughan, V. C., and Palmer, G. T.: Communicable Disease in the United States Army During the Summer and Autumn of 1918, J. Lab. and Clin. Med. **4**: 587 (July) 1919.

Current Comment

SOME LESSONS FROM THE EXPERIENCES WITH COMMUNICABLE DISEASES IN THE ARMY

We must all appreciate that the experience of our medical officers and epidemiologists in the world war will be productive of educational benefit when the observations have been correlated and interpreted. Diseases once the terror of armies have been conquered by scientific medicine, but new maladies have replaced them and presented new problems for solution. During the Spanish-American War, typhoid was an ever-present source of worry, but was almost completely eliminated in the recent warfare.. On the other hand, it is well known that during 1918 civilian communities suffered greatly from the influenza and pneumonia invasion, but that the death rate was higher among the soldiers in camp than among the civilians. One out of every four men had influenza; one out of every twenty-four men encamped in this country had pneumonia; one out of every sixty-seven died.[6] Vaughan and Palmer remind us[6] that, compared with epidemics for

which we have fairly accurate statistics, the death rate at Camp Sherman in the fall of 1918 is surpassed only by that of plague in London in 1665 and that of Philadelphia in 1793. The plague killed 14 per cent. of London's population within seven months. Among the lessons that already are emerging from the details of the army medical experience of last year, the factor of the natural susceptibility of individual persons takes a conspicuous place. The army experts have ascertained that disease was in general more prevalent in the army in this country than among our soldiers abroad. The exceptions to this were dysentery, meningitis and scarlet fever. Vaughan and Palmer conclude that "there is more disease in this country because the men are more susceptible. The home army is more susceptible because it contains a greater proportion of new men. The new, unseasoned recruit is therefore responsible for more sickness than is caused among seasoned men by undergoing the hardships of physical and mental fatigue and exposure of combat." A further highly important lesson concerns the importance of prosecuting more vigorously than ever before the effort to learn the etiology of the respiratory diseases that have proved so unexpectedly menacing. Smallpox, typhoid, tetanus and diphtheria have yielded to the investigator's persistence. We may confidently expect a comparable success against the ravages of influenza, pneumonias, scarlet fever and measles when once their true causation has been adequately elucidated.

THE THERMAL DEATH POINT OF TRICHINA LARVAE

Parasitic organisms are not uncommon as constituents of certain animal tissues: trichinae, the larvae of *Trichina spiralis*, occur not rarely in pork, and calves and sheep may also be infected. The meat is not rendered unfit for human consumption on this account, for any procedure that will destroy the life of the parasite without rendering the flesh unfit for dietary use permits conservation of food products. The cooking of trichinosed meats has long been looked on as accomplishing this result. In view of the fact that enormous quantities of pork products are handled every year in this country on a factory scale under conditions to which household methods of cooking do not apply, it has become desirable to know with considerable accuracy what the limits of viability of trichinae in flesh are. According to a recent investigation at the Bureau of Animal Industry,[1] the vitality of the larvae of *Trichina spiralis* is quickly destroyed by exposure of the parasites to a temperature of 55 C. (131 F.), gradually attained, the result apparently of irreversible coagulation changes in the protoplasm. This temperature may be considered the thermal death point. The experiments further indicate that when exposed to temperatures in the neighborhood of 50 C. (122 F.), trichina larvae die if the application of heat is sufficiently long continued, apparently as a result of exhaustion following excessive activity to which they are stimulated by the heat. From a practical standpoint, the continuous heating at temperatures below the lethal point has very little importance. From the standpoint of public hygiene, however, it is important to know that the rules enforced in connection with the federal inspection of meat products include a certain margin of safety. The Bureau of Animal Industry has selected a temperature of 137 F. (58.33 C.) as the minimum temperature to which pork and products containing pork are required to be heated when cooked in establishments operating under its jurisdiction. Smaller establishments free from such careful inspection are frequently derelict with respect to the necessity of heating uninspected pork products. Sausages are particularly liable to careless treatment when they are prepared in small, irresponsible establishments. Not a few of the cases of trichinosis still encountered in clinical experience may be traced to such negligence.

1. Ransom, B. H., and Swartz, B.: Effects of Heat on Trichinae, J. Agric. Res. 17:201 (Aug. 15) 1919.

THE CALDER BILL—A VICIOUS MEASURE

Senator Calder of New York has recently introduced a bill that would make practically all products that now come under the purview of the federal Food and Drugs Act immune from state laws. The bill provides, in effect, that no state or city law relating to the adulteration or misbranding of foods, drugs or medicines, "or regulating the branding thereof," shall apply to, or interfere with, the sale of any foods, drugs or medicines in package form which have been transported in interstate commerce and are not adulterated or misbranded under the provisions of the federal law. The effects of such a bill, should it become a law, would be utterly vicious. It would mean that when a state has a law that offers greater protection to the public than the federal law offers, the state law would be rendered inoperative. For instance, the severe setback, which the glucose interests received at the hands of the state of Kansas a few months ago, could never have happened if the Calder bill had been a law. Our readers will remember that Kansas requires the manufacturers of syrup-mixtures to declare definitely on the label the percentages of each ingredient. The Corn Products Refining Company sold a syrup-mixture which was found to contain 85 per cent. glucose, 10 per cent. molasses and 5 per cent. sorghum. The company did not declare the proportions of the ingredients on the label; the Kansas authorities, under the state law, successfully proved the right of the state of Kansas to enact and enforce the ingredient-percentage requirement of its law. Another instance of what the Calder bill would do if it became a law can be understood by recalling the case of Nebraska against "Hall's Catarrh Cure." This nostrum, put out by a power in the "patent medicine" world, was still labeled a "cure" years after the federal authorities had forced less influential concerns to remove the word "cure" from their labels. Nebraska, under its own food and drugs law, prosecuted the Hall concern and won. As a result, it is now "Hall's Catarrh Medicine." Louisiana, as

THE JOURNAL recently pointed out, has a law prohibiting the sale of venereal disease remedies except on the written prescription of a licensed physician. This has stopped the sale in that state of the vicious and dirty nostrums sold for the self-treatment of syphilis and gonorrhea. Should the Calder bill become a law, a manufacturer of a disgusting and dangerous "patent medicine" of this type (provided he lives outside of the state of Louisiana) could sell his stuff in Louisiana and, figuratively speaking, put his thumb to his nose at the state authorities. While Mr. Calder's motives in introducing this bill are doubtless of the best, THE JOURNAL is convinced that the effects of the bill, should it become a law, would be altogether bad. Such a law would, in effect, enable unscrupulous manufacturers of food products and medicines to enjoin the various states of the Union from passing any laws, or enforcing any laws already passed, that are stricter than the federal law. Powerful interests might find it easier—and less expensive—to control legislation in Washington than in forty-eight individual states.

SECRET REMEDIES AND THE PRINCIPLES OF ETHICS

Many hundreds, possibly thousands, of inquiries are received each year by THE JOURNAL from physicians asking for information on, or an opinion of, certain proprietary remedies. In many instances the preparations in question are essentially secret in composition, although advertised to the profession under a fair-seeming exterior of apparent frankness. There are on the market today—and used by members of the American Medical Association—dozens, yes scores, of widely advertised proprietaries that are, to all intents and purposes, secret. The physicians who prescribe them do not know and cannot know what they are giving their patients. On this point Section 6 of Chapter II of the Principles of Medical Ethics of the American Medical Association says:

". . . it is . . . unethical to prescribe or dispense secret medicines or other secret remedial agents, or manufacture or promote their use in any way."

The inherent and basic reasonableness of the various requirements of the Principles of Medical Ethics needs no exposition or defense. A large number of proprietary remedies which at present degrade medicine would be wiped out of existence or, at any rate, go over to the "patent medicine" class, where they belong, if physicians would live up to Section 6, Chapter II, of the Principles.

Vivisection in England During 1918.—The Home Office return for last year shows that the total number of vivisection experiments amounted to 77,601, being 22,066 more than in 1917. . . . Twenty-nine thousand investigations were undertaken on behalf of government departments and public health authorities, and 37,000 for the preparation, standardizing and testing of serums, vaccines and drugs. Cancer research work involved 6,027 experiments; of these, all but 137 were carried out without requiring the use of an anesthetic under the act. In England and Scotland twenty-three new places, mostly laboratories connected with military hospitals or municipal establishments, were registered for the performance of experiments during the year. The total number of licenses granted was 701.—*The Medical Press.*

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Sanatorium Opened.—Pine Lodge Sanatorium, located a little west of Colfax, was opened and dedicated early in August. The building is a two story structure finished in gray stucco. It will accommodate nineteen patients, and is under the charge of Dr. Robert A. Peers, Colfax.

CONNECTICUT

Personal.—Dr. Daniel Cantarow, Hartford, sailed for England, September 12.

Reunion at Gaylord Farm.—Gaylord Farm Sanatorium, Wallingford, the first county tuberculosis sanatorium in America, and one of the oldest in the country, held a homecoming reunion, September 13, at which about 300 of the 1,200 graduates were present.

Tuberculosis Association Receives Allotment.—The National Tuberculosis Association has sent to the Connecticut State Tuberculosis Comission a check for $13,690.16, the final allotment from the fund guaranteed by the American Red Cross to the National Tuberculosis Association for giving up the sale of Christmas seals. This brings the total amount received by the state commission to $43,710.02.

State Fight on Tuberculosis.—The Connecticut State Tuberculosis Commission announces that it is putting into effect a plan to fight tuberculosis in its incipiency, utilizing the information obtained from army records of the rejection of many men from the service because they were suffering from early forms of the disease. Tuberculosis organizations in every city and large town in the state will take cognizance of the list of rejects and endeavor to place them under treatment. It is believed that 60 per cent. of the incipient cases will respond to treatment and that a large proportion will be restored to normal activities by the recommended courses of exercise, rest and appropriate nourishment. Of the total number of drafted men from the state, 1,024 were rejected on account of tuberculosis. Of these, 127 were from New Haven, 121 from Bridgeport, 112 from Hartford and 106 from Waterbury.

GEORGIA

Examining Board Reappointed.—The governor, August 29, announced the reappointment of the following members of the state board of medical examiners: Drs. Alfred F. White, Florilla, Henry W. Terrell, LaGrange, and Harold F. McDuffie, Atlanta.

Personal.—George A. Traylor, Lieut.-Col., M. C., U. S. Army, Augusta, has returned and has resumed practice after an absence of two years in military service.——Dr. Will L. Wood, Atlanta, has been elected health commissioner of Fulton County.——Dr. Claude A. Smith has resigned as city bacteriologist of Atlanta, and has been succeeded by J. E. Acker, assistant city chemist and bacteriologist.——Dr. Walter E. Barber, Atlanta, has been reappointed a member of the health board of Fulton County.

ILLINOIS

Hospital Founder Dies.—Mr. F. M. Elliott, founder, and for twenty years president of the Evanston Hospital, died suddenly at his home in Evanston, September 16.

Sanatorium for Kane County.—The board of supervisors of Kane County, at a meeting held in Geneva, September 19, appropriated $100,000 for a county tuberculosis sanatorium.

New Sanatorium.—The new tuberculosis sanatorium for McLean County, Fairview, located just north of Normal, is now in full running order; almost all of the beds are occupied, and many patients are already showing improvement and increase in weight.

Presentation to Base Hospital Commander.—The enlisted men of Base Hospital No. 12 recently sent their commanding

officer a hand hammered sterling silver platter engraved with the following inscription: "Presented to Major Payson L. Nusbaum, Chicago, commanding officer at Base Hospital No. 12, by the enlisted men of that organization on completion of twenty-two months of active service in France as a token of their esteem and regard."

Illegal Practitioners Fined.—H. C. Crabtree of Freeport and Samuel Leonard of Shannon, Carroll County, were arrested by the Illinois Department of Registration and Education for practicing medicine without a license and were fined, respectively, $50 and $100 and costs. The public school nurses of Carroll County aided the department in securing the necessary evidence against Leonard.——Mrs. Anna Zeolkowski, Chicago, is said to have been fined $25, September 16, for practicing medicine without a license.——J. G. Biemas, Chicago, September 16, is said to have pleaded guilty to having set a broken leg, and to have been fined $5.

Personal.—George G. Davis, Lieut.-Col., M. C., U. S. Army, Chicago, has recently been discharged from military service and has returned home.——John A. Hornsby has returned to Chicago.——Dr. Harry E. Mock, Chicago, has again been commissioned colonel, M. C., U. S. Army, and appointed delegate to the International Conference to be held in Rome, next month.——Clarence L. Wheaton, Major, M. C., U. S. Army, Chicago, was honorably discharged from military service at Camp Grant, September 19, after twenty-two months of continuous service at the camp in charge of the tuberculosis work.

Chicago

Attend Chemical Exposition.—About 15,000 visitors are attending the Fifth National Chemical Exposition. Meeting in conjunction with the exposition are a number of technical societies. Dyes, pharmaceuticals and machinery constitute the major portion of the exhibit, but other phases are adequately represented, such as the resources of America and Canada, the public safety work of the Bureau of Mines and accomplishments of the Chemical Warfare Service.

IOWA

New Sanatorium.—St. John's Hospital Farm, near Riverton, is to be a tuberculosis sanatorium auxiliary to St. Joseph's Hospital, Springfield. The farm contains 500 acres and buildings are to be erected from time to time as necessary. A sanatorium building is practically complete, and buildings are to be erected for a hospital for crippled children, and one for nervous diseases.

Personal.—David S. Fairchild, Jr., Col., M. C., U. S. Army, Clinton, formerly chief surgeon of the Forty-Second (Rainbow) Division, and now on duty at the Surgeon-General's Office on war combat medical histories, has been cited and has received a personal letter from General Pershing commending his work and expressing his appreciation of the valuable services rendered to the American Expeditionary Forces as division surgeon.——Dr. R. H. Sylvester, clinical psychologist at the Iowa State University, Iowa City, has been selected as chief of the health center at Des Moines, with headquarters in the court house.——Dr. Walter L. Bierring, Des Moines, returned home, August 29, after two months spent in Europe in the interests of the National Board of Medical Examiners.

KANSAS

Personal.—Dr. J. McLean Moulder has been selected as head of the Methodist Hospital, Kansas City, for another term.——Dr. J. Carroll Montgomery, Manhattan, has been placed in charge of the work of the United States Public Health Service in Cherokee County with headquarters at Columbus.

MARYLAND

Meetings.—The Maryland Psychiatric Society and the Baltimore County Medical Association held a joint meeting on September 17, at Middle River, as the guests of Dr. J. W. Harrison. Following a luncheon, addresses were delivered by Capt. Hubert C. Knapp and Dr. Richard F. Gundry of Catonsville.

Typhoid is Epidemic.—At Hagerstown, typhoid fever has reached an epidemic stage. The total number of cases reported so far is thirty, and the Red Cross is preparing to bring nurses to the city from other cities if the situation does not improve. The county health board is in consultation with the state board of health regarding the situation. So far all cases are traceable to milk furnished by one dairyman, who had used infected water from two wells and a spring on his farm. All milk, as well as the city water and wells and springs, in the community, will be tested for typhoid bacillus. Antityphoid inoculation is being used to check the disease.

Aid for the Backward.—Provision for the care and training of boys and girls unable to advance in the public schools will be considered at a conference called at the request of Dr. Francis Lee Dunham of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital. One of the suggestions offered is that some arrangement be made by which these children may spend part of their time in school and part in industrial training. Mr. Fox of the state board of labor and statistics has pointed out that since October 1, last, when the new law dealing with delinquent children became operative, the state board has handled cases involving 260 retarded boys. Twenty-six of the boys were hard to handle and fully 75 per cent. of the total number had juvenile court records. It has also been suggested that the school survey commission devote special attention to the training of backward and mentally deficient boys and girls and include in its recommendation some system of training them. Under the law, children between the ages of 14 and 16 years are not permitted to work, and cannot be forced to attend school. The result is that many of them drift into the juvenile court or are sent to institutions. All this can be overcome through the cooperation of proper officials and others interested in the development of children.

Personal.—Ernest D. Everett, Capt., M. C., U. S. Army, Lakeview, Ore., who has been on duty as ophthalmologist and otorhinolaryngologist at U. S. General Hospital No. 21, Carlisle, Pa., since his return from France in June has been separated from the service and located at Frostwood.——John F. Keenan, Brentwood, has been appointed medical referee of the Pension Bureau, Washington, D. C., succeeding Dr. Thomas Featherstonbaugh, resigned.——Capt. E. P. Dameron, Medical Corps, has been transferred from U. S. Army General Hospital No. 2, Fort McHenry, to Jefferson Barracks, St. Louis, where he will be assistant to former Lieut.-Col. Blair, who had supervision of the maxillofacial cases of the entire army until recently. Captain Dameron came to Fort McHenry from U. S. Army General Hospital No. 11, Cape May, N. J.——Col. Thomas J. Leary, U. S. Army, has arrived at U. S. Army General Hospital No. 2, Fort McHenry, to succeed Lieut.-Col. Junius H. McHenry. Colonel Leary recently returned from France, where he was in command of Evacuation Hospital No. 5. With him come five medical assistants of the regular army to assist Major Gavin Hamilton in the surgical work.——Dr. William S. Thayer, professor of medicine in the Johns Hopkins University, has returned to Baltimore after two months spent in France in recuperating from the strain he was under during the war. Dr. Thayer was chief medical consultant of the American Expeditionary Forces.——Dr. H. W. Wheaton, who recently returned from service overseas, has accepted a position in the neurologic department of the Sheppard and Enoch Pratt Hospital, Towson.——Dr. Frank E. Shipley, Savage, has been appointed resident physician at the Maryland House of Correction by the state board of prison control and Dr. Corbin Street, Baltimore, has been appointed visiting physician.

MICHIGAN

Typhoid Fever in Detroit.—During July, there were twenty-nine cases of typhoid fever in Detroit and these were probably directly due to contact with lake and river waters in the vicinity of the city, where pollution by sewage is said to exist without interruption.

Tuberculosis Clinic Opens.—A free clinic, under the direction of the Michigan Anti-Tuberculosis Association, was opened at the Spies Library, Menominee, September 10, and will continue for three days under the direction of Dr. Edwin R. VanderSlice, Ann Arbor, and Dr. William R. Vis, Grand Rapids.

Personal.—Victor H. DeSomoskroy, Capt., M. C., U. S. Army, Flint, has been offered the rank of Lieutenant-Colonel in the Polish Army and has gone to Poland as a member of the American Commission for the relief of the typhus situation in that country.——Dr. Leon B. Harris has been appointed city physician of Saginaw, succeeding Dr. Fred W. Edelmann.——The Houghton County Medical Society gave a banquet, September 1, in honor of Dr. Joseph

E. Scallon, Hancock, who is entering on his forty-fifth year of medical practice in the copper country.

MINNESOTA

Personal.—Dr. I. Pemberton P. Hollingsworth, St. Paul, has been appointed assistant health officer for Sioux Falls, S. D. ——Dr. G. Booker Granger, Rochester, has resigned as assistant city health officer of Rochester and will be succeeded by Dr. Walter F. Bleifuss, Elgin.

Clinic Organized.—The Pipestone Clinic has been organized by Drs. William J. Taylor, Eugene G. McKeown and W. E. Robertson, on the second floor of the Pipestone National Bank Building. The temporary hospital located at South Kenwood Street will be ready to receive patients, October 1.

Conviction Confirmed.—The Minnesota Supreme Court is said to have confirmed the conviction of Dr. Clarence D. Whipple, Minneapolis, on the charge of selling habit-forming drugs to a drug addict in violation of the law. Dr. Whipple obtained a thirty-day stay of sentence, August 23, and was released on bail of $2,500.

Health Association Work.—The St. Louis County Health Association has sent out an appeal to all health officers and others engaged in health work calling for their cooperation. There is at present about $4,000 available for expenditure and it is proposed that this shall be devoted to antituberculosis educational work in the county.——The annual meeting of the Goodhue County Public Health Association was held in Redwood, September 8, to elect officers, receive reports of work, and to determine the program and budget for the coming year.

MISSOURI

Typhoid in Lafayette County.—Typhoid fever is reported to be epidemic in the southeastern part of the county where more than twenty cases with three deaths have occurred. Samples of milk and water have been sent to the state university for analysis. Several cases have already developed around Houstonia and Concordia.

Treatment of Narcotic Addicts.—The Kansas City Board of Health has established a system of licensing reputable physicians to treat narcotic addicts and is placing restrictions on all physicians in prescribing and administering narcotics. All addicts are required to register with the board and will be assigned for treatment to the physicians especially licensed to do this work.

Neurologic Department for Hospital.—The Springfield Hospital at Springfield has purchased and is operating as a neurologic department the hospital established by the late Dr. Samuel A. Johnson for the treatment of mental and nervous diseases. The board of managers has also purchased additional property costing several thousand dollars which will be converted into a home for the nurses. Another improvement is the establishment of a modern laboratory which will be under the direction of Dr. Murray C. Stone, Springfield.

Clinical Section of Society Organized.—Members of the St. Louis Medical Society have formed a clinical section of that body for the purpose of organizing and systematizing the clinical material in St. Louis so that visiting physicians may have the opportunity to benefit by attendance. A daily bulletin will be issued to those physicians who register with the secretary of the clinics, giving the location of the hospitals where clinics will be held and the character of the work to be done. For the present no charge will be made for registration.

Personal.—Dr. Ota S. Wilfley, formerly of Webb City, has accepted the position of examining medical officer for the Federal Board of Vocational Education for District No. 9, with headquarters at St. Louis. He has accepted a commission in the United States Public Health Service under which service the vocational education is being directed.——Dr. Nathaniel Allison, St. Louis, who served in the Medical Corps of the Army during the great war and was recently honorably discharged with the rank of colonel, has again entered active service in the Army with the rank of colonel and has been ordered to Rome as American representative at the International Congress of Surgery, which will be held in Rome in October. Dr. and Mrs. Allison sailed for Rome, September 17, on one of the government transports.——Dr. William L. Hoagland, Kansas City, has been attached to the General Hospital Ambulance Service.——Dr. Morris S. McGuire, Arrow Rock, met with an accident, August 8, which confined him in the Boonville Hospital for a month, and necessitated the amputation of all the toes on his right foot.

NEBRASKA

Personal.—Dr. James F. Edwards, Pittsburgh, who was chief surgeon at Camp Mills, N. Y., until his discharge from the government service, September 1, has taken over his new duties as health commissioner of Omaha, succeeding Dr. Ernest T. Manning, resigned.——Dr. Samuel J. Stewart, Hastings, has been appointed superintendent of the State Institution for the Feebleminded, Beatrice, and will assume his new duties, November 1.

NEW YORK

New York City

Personal.—Dr. Sidney R. Burnap has been appointed associate dean of the College of Physicians and Surgeons of Columbia University. This is the first time the university has had an associate dean.

Well-Known Chemist Decorated.—Dr. L. H. Baekeland, New York, honorary professor of chemical engineering in Columbia University, has been decorated by King Albert, with the Order of the Crown of Belgium.

Conference on Prevention of Influenza.—A conference was held in this city during the past week which marks the beginning of a federal, state and municipal effort to prevent the threatened recurrence of influenza. Dr. William H. Park, director of the laboratories of the department of health; Dr. George W. McCoy, director of the laboratories, U. S. P. H. S.; Dr. M. J. Rosenau, professor of hygiene and preventive medicine in Harvard University, and Dr. E. O. Jordan, professor of bacteriology in the University of Chicago, were present at the conference and agreed to unite their efforts in forestalling an epidemic. Following the conference Dr. Copeland announced that circulars of warning and instruction will be distributed through the schools. He also urges physicians to report every case of influenza and announces that the department of health is prepared to give a vaccine to physicians and to administer it at the board of health clinics.

Scholarships Open to Negroes.—According to an announcement made by the General Education Board of the Rockefeller Foundation, through its secretary, Abraham Flexner, Julius Rosenwald of Chicago has offered six scholarships of $1,200 each to pay the expenses of especially qualified negro students doing postgraduate work in such fundamental medical sciences as pathology, bacteriology, physiology, pharmacology, physiologic chemistry, etc. The committee in charge of the awards will consist of Dr. William H. Welch, Baltimore, Dr. David L. Edsall, Boston, Dr. Victor C. Vaughan, Ann Arbor, Mich., and Abraham Flexner. Appointments will be made in 1920, toward the close of the year's session, to be effective for the succeeding academic year. Applications may be made to the secretary of the General Education Board by individuals or by institutions in behalf of individuals, and should contain a full account of the education—general and professional—of the applicant, including a transcript of his entire record in the medical school.

OHIO

Health Department Moves.—The state board of health moved, September 9, from the Ohio State University to the Clinton Building, Columbus.

New Officers.—The Tenth District Medical Society at its annual meeting held in Marysville, September 5, elected Dr. James E. Holmes, Columbus, president; Sylvester Goodwin, Circleville, secretary, and the presidents of the various county medical societies, vice presidents. The next meeting will be held in Chillicothe.

Appointment Rejected.—The board of directors of the University of Cincinnati, September 9, is said to have rejected the appointments of the faculty of the industrial medicine and public health department made by Dr. Carey P. McCord. This department is not directly associated with the University of Cincinnati, although the board of directors is authorized to make appointments. The financing of the department is by subscription of business men of Cincinnati.

Second Councillor District Medical Society Holds Medical Chautauqua.—A "Medical Chautauqua" was held by the Second Councillor District Medical Society, September 22 to 26, at Dayton. The meetings are designed to furnish physicians an opportunity to obtain postgraduate lectures and clinics at a minimum expenditure, each physician paying a fee of ten dollars to defray the expenses of the lectures.

Among those delivering clinics and lectures during the present session were Drs. Richard C. Cabot, Boston, Harold N. Cole, Boston, A. E. Sterne, Indianapolis, H. Brooker Mills, Philadelphia, W. D. Porter, Cincinnati, M. H. Fischer, Cincinnati and G. W. Crile, Cleveland.

Agree on Sale of Sanatorium.—The county commissioners of Summit, Portage, Columbiana, Trumbull and Stark counties, at a meeting held at the Springfield Lake Tuberculosis Hospital, September 12, agreed to a proposition made by Summit County for the purchase at cost of the interests of the four counties owning the hospital. By this agreement Summit County will pay each of the other counties the amount of money invested in land and property. The original cost of the institution was $298,000 with about $25,000 additional taken from the maintenance fund for equipment and alterations. The share of Stark County is said to be $80,011.21. Stark County proposes to unite in a single group the county workhouse, county infirmary and county tuberculosis sanatorium, financing the plan by the sale of the present infirmary site of 311 acres which is estimated to be worth $1,000,000.

Personal.—Major Guthrie McConnell has accepted a position as director of the research institute of the National Dental Association, Cleveland.——Dr. J. Edward Pirrung, Cincinnati, has been elected surgeon-general of the National Army and Navy Union.——Dr. John H. Berry, Lima, has been appointed superintendent of the Athens State Hospital, succeeding Dr. Ora O. Fordyce, Athens, who was recently transferred to the Toledo State Hospital.——Dr. Valloyd Adair has succeeded Dr. Charles R. Meek as health officer of Lorain.——L. H. Van Buskirk, for six years in the engineering department of the state board of health and for the last four years director of the division of laboratories, has resigned to join the teaching force of the Medical College of the State University of Ohio, Columbus.

PENNSYLVANIA

District Meeting.—The thirteenth annual meeting of the Fifth Censorial District, consisting of Adams, Cumberland, Franklin, Fulton and York counties, was held at the Colonial Hotel, York, July 24, and the following officers were elected: president, Dr. Theodore H. Weagly, Franklin County; vice presidents, Drs. John C. Felty, Adams County; Samuel E. Mowery, Cumberland County, and Joseph C. Atkins, York County; and secretary, Dr. James P. Dalbey, Adams County.

Philadelphia

First Aid Course.—Public school pupils will learn emergency first aid as part of their regular class room study when the junior American Red Cross begins its first aid course in the schools, October 1. The course will include, beside first aid, accident prevention and home hygiene.

Personal.—Dr. John H. Gibbon will sail for France, October 8, to represent the United States government in the interallied surgical conference to be held in Paris.——Dr. J. Torrance Rugh, professor of orthopedic surgery, delivered the introductory address at the ninety-fifth annual session of the Jefferson Medical College of Philadelphia in the clinical amphitheater of the Jefferson Hospital, September 22.

VIRGINIA

Sanatorium in Danville.—A campaign is under way this month in Danville to raise $60,000 for the erection of a new tuberculosis sanatorium, the buildings for which will be erected on the tract of land donated to the city by Mr. R. L. Dibrell.

Professional Building.—A twelve story building is to be erected at Freemason and Duke streets, Norfolk, to be known as the Medical Building, and to be occupied by physicians and dentists. The building and site will represent an outlay of approximately $400,000. The first floor of the structure will be given over to stores, and the twelfth floor will be arranged for assembly and conference rooms for the local medical organizations, the rest of the building being used for offices.

Personal.—Dr. Charles V. Carrington, Richmond, is reported to be seriously ill in St. Elizabeth's Hospital.——Dr. George W. Schenck, Norfolk, has returned from France, and has resumed his duties in the Woman's Hospital, New York City.——Dr. Edgar C. Harper, whole-time health officer for Prince William County, is in charge of the county health campaign for which funds were raised last spring. The campaign will last one year, and will include school inspection, examination of schoolchildren and a sanitary survey of the county.

Hospitals Chartered.—The Providence Hospital Association has been incorporated at Danville with the object of establishing and maintaining a benevolent and charitable hospital. Messrs. G. W. Goode and J. Alexander Valentine, and Drs. Albert L. Winslow, Frederick W. James and Abel E. West, all of Danville, are the incorporators.——An amendment to the charter of the Johnston-Willis Sanatorium, Richmond, to increase the capital stock from $100,000 to $250,000 has been approved. The increase is to allow for the erection of a modern hospital building at Kensington Street and the Boulevard. Dr. A. Murat Willis is the president, and Dr. J. McCaw Tompkins, secretary, of the institution.

WISCONSIN

Dinner to Service Men.—The Milwaukee County Medical Society gave a dinner in honor of its 120 members who were in the military service and have returned therefrom, September 11, at the Milwaukee Athletic Club. Dr. Gustav J. Kaumheimer was toastmaster, Dr. H. Manchester Brown gave the address of welcome and Col. Gilbert E. Seaman responded for the service men.

Clinic Course at State University.—During the last year 247 physicians of the state have been enrolled in courses given in ten cities of Wisconsin by the bureau of postgraduate medical instruction of the University of Wisconsin, Extension Division. These courses were given by Drs. Frederick C. Rinker and Hugh P. Greeley, Madison, under the direction of Dr. L. Rock Sleyster, Waupun.

Antituberculosis Association in New Home.—The September issue of the *Crusader*, the monthly publication of the Wisconsin Anti-Tuberculosis Association, was issued from its new building, known as the Health Service Building on Jefferson Street. This building is now the headquarters of the organized fight against tuberculosis and preventable diseases, and for better health in Wisconsin.

CANADA

Banquet to Service Men.—The members of the Academy of Medicine, Toronto, will give a complimentary banquet to 150 of its Fellows who have served overseas, September 30. The Academy opens its regular session in October under the presidency of Dr. Edmund E. King, Toronto.

Six Years' Course Required.—With the opening of the session 1919-1920 of the medical department of the Western University, London, Ont., the course of medical studies will be six years, excepting that those matriculants who left for overseas service will be on the five-year plan. Toronto and Queen's Universities now pursue the same plan.

Personal.—Major W. Harley Smith, Toronto, has returned from overseas. In his three years' service he spent most of the time in the Orpington Military Hospital, but latterly had been with an R. A. M. C. hospital in France.——Col. George G. Nasmith, Ph.D., C. M. G., chief of laboratories in the department of health, Toronto, has resigned and will engage in consulting practice with a Toronto firm of sanitary engineers.——Mr. Horace L. Brittain, Ph.D., who has been superintendent of the Toronto General Hospital for two or three years, has resigned. Mr. Brittain was engaged on the resignation of Dr. Charles K. Clarke, Toronto, to place the management on a business basis.

GENERAL

Southern Medical Association Meeting.—The annual meeting of the Southern Medical Association will be held at Asheville, N. C., November 12 and 13, with headquarters at the local Y. M. C. A.

Antimalaria Conference.—The American Anti-Malaria Association will hold a convention at Florence, Ala., October 15, having as its object the launching of a campaign to eradicate malaria from the United States. Senator O. W. Underwood will be chairman of the convention.

Valley Physicians Meet.—At the seventeenth annual meeting of the Cumberland Valley Medical Association held at Hagerstown, Md., September 4, under the presidency of Dr. Percy D. Hoover, Waynesboro, Pa., Dr. Jeptha E. Pitsnogle, Hagerstown, Md., was elected president; Dr. David W. Van Camp, Plainfield, Pa., vice president; Dr. John J. Coffman, Scotland, Pa., secretary (reelected), and Dr. John K. Gordon, Chambersburg, Pa., treasurer.

Medal to Dr. Noyes.—At a reception and dinner given by the Chicago Section of the American Chemical Society, September 26, the William Gibbs Medal, founded by William A. Converse, was presented to Dr. William Albert Noyes, director of the chemical laboratory of the University of Illinois. The presentation address was made by the president, William H. Nichols, and the Willard Gibbs address on "Positive and Negative Valences," by Dr. Noyes.

Roentgenologists Elect Officers.—At the recent annual meeting of the American Roentgen-Ray Society held at Saratoga Springs, N. Y., September 3-6, the following officers were elected: president, Dr. James T. Case, Battle Creek, Mich.; vice presidents, Drs. William P. Burnham, San Francisco, and Stanton Heck, Salem, Ohio; secretary, Dr. George W. Grier, Pittsburgh; treasurer, Dr. William A. Evans, Detroit; editor, Dr. Harry M. Imboden, New York City, and associate editor, Dr. Percy E. Brown, Boston.

Obstetricians and Gynecologists Elect Officers.—At the thirty-second annual meeting of the American Association of Obstetricians and Gynecologists held in Cincinnati, September 15 to 17, under the presidency of Dr. John F. Erdmann, New York, the following officers were elected: president, Dr. George W. Crile, Cleveland; vice presidents, Drs. Palmer Findley, Omaha, and David Hadden, Oakland, Calif.; secretary, Dr. E. Gustav Zinke, Cincinnati (reelected), and treasurer, Dr. Herman E. Hayd, Buffalo. The next meeting will probably be held in Atlantic City, N. J., September 13 to 15, 1920.

Mississippi Valley Medical Association to Meet.—The forty-fourth annual meeting of the Mississippi Valley Medical Association will be held in Louisville, October 21 to 23, under the presidency of Dr. Francis M. Pottenger, Monrovia, Calif. The address in medicine will be given by Dr. Frank Smithies, Chicago, on "Cardio-Respiratory Manifestations of Gassing in Returned Soldiers," and the address in surgery by Dr. W. Wayne Babcock, Philadelphia. There will also be held symposiums on pneumonia, empyema, neuropsychiatry, surgery of bones, reconstruction problems, the treatment of the tuberculous soldier after his return to civil life, general surgical problems, the medical reserve officers in the war, and tuberculosis of the kidney.

Electrotherapeutists Hold Meeting.—The twenty-ninth annual meeting of the American Association of Electro-Therapeutics and Radiology was held in Philadelphia, September 16 to 19, under the presidency of Dr. William L. Clark, Philadelphia. The program included symposiums on dermatology, induced catabolism, metabolism, the cardiovascular system, roentgen therapy, digestive disturbances, orthopedics, reconstruction following war injuries and physiotherapy. The following officers were elected: president, Dr. William Martin, Atlantic City, N. J.; vice presidents, Drs. William T. Johnson, Philadelphia; Virgil C. Kinney, Wellsville, N. Y.; S. St. John Wright, Akron, Ohio; Mary L. H. Arnold Snow, New York, and John H. Burch; Syracuse, N. Y.; treasurer, Dr. Emil Heuel, New York (reelected), and secretary and registrar, Dr. Byron Sprague Price, New York.

Label on Denatured Alcohol.—A recent circular, issued by the commissioner of internal revenue as a treasury decision, notifies revenue officers concerning a new ruling relative to the labeling of packages of completely denatured alcohol. This has been made necessary to protect ignorant users of these preparations. The notice states:

> In view of the grave and extended abuses of the use of completely denatured alcohol reported, it is deemed necessary to print upon the labels affixed to wholesale and retail packages a further and more specific warning as to its use than is shown on the present required label.
>
> In addition to the present matter on the labels there will be required on all new labels hereafter the printing in large letters in red ink under the skull-and-bones symbol the word 'Poison,' and at the bottom of the label there will be printed the following statement:—
>
> "Completely denatured alcohol is a violent poison. It cannot be applied externally to human or animal tissue without seriously injurious results. It cannot be taken internally without inducing blindness and general physical decay, ultimately resulting in death."
>
> Until the present stocks of labels are exhausted this additional matter may be affixed to the containers on a separate label pasted above the present required label.

Hygiene of Maternity and Infancy.—A bill to encourage instruction in the hygiene of maternity and infancy has been introduced in the United States senate by Senator Joseph T. Robinson of Arkansas. The bill provides that the children's bureau of the department of labor is to have general supervision of the work, which will be directed by the federal government and carried on largely through state cooperation. The bill carries on appropriation of $480,000, of which $10,000 is to be granted to each state of the union for necessary expenses in carrying out the provision of the act, with larger appropriations for the next three subsequent years to be expended whenever any state offers to appropriate money for this work, the federal contribution being equal to that of the state. The state agency is to be the state board of maternity aid and infant hygiene, and after 1924 an annual sum of $2,000,000 is provided. The general dissemination of information on maternity and hygiene is to be the chief function of the proposed enterprise. The bill has been referred to the senate committee on education and labor.

International Conference of Women Physicians.—This conference opened its sessions at the headquarters of the Y. W. C. A., New York City, September 15. The conference was assembled in response to new conditions created by the war under which good health became an asset to every woman as never before. Women physicians came to feel that they had a special contribution to make toward the development of the health of women and children. They have come to recognize that women must possess greater physical stamina if they are to make an effective contribution to industry and business without injury to the oncoming generation. With this idea in mind the subjects are being discussed by the conference, not from the research point of view, but from that of their practical bearing on the problem of the development of a more vigorous and responsible type of woman. The conference will continue with intermissions until October 15, when the results will be presented in condensed form to a convention of delegates from various women's organizations in this country and a proposed plan, by means of which women may bring to pass changes in social conditions affecting their lives as outlined in the previous program, will be discussed. During the intermissions, hospitals and institutions in and near New York will be visited and a trip to Boston has been arranged. Among the subjects discussed during the first week of the conference were "Health and Personality," "Physical Examinations as a Means of Health Education," "Exercise—Most Neglected Health Habit," "Dress as an Index of the Position of Women," "National Food Economics," and "Vitamins," the latter subjects being presented by Drs. Graham Lusk, New York, and E. V. MacCullom of Baltimore.

FOREIGN

Bard Called to Strasburg.—Prof. L. Bard, who for twenty years has been the incumbent of the chair of clinical medicine at the University of Geneva, has accepted a corresponding position at the University of Strasburg. He has published much personal research and deductions, his more recent works having been on the "sense of gyration," nystagmus, etc.

Germany's Losses in the War.—The *Deutsche medizinische Wochenschrift* of May 29 gives the total losses of Germany as 6,873,415. This includes the 615,922 soldiers held prisoners of war in other lands, and the 4,207,023 wounded. The dead numbered 1,676,696, and the missing, most of whom are presumably dead, 373,770, a total of 2,000,000 killed in the war.

Congress Number of the "Medicina Ibera."—The *Medicina Ibera* has issued a special number in honor of the First National Medical Congress in Spain. It gives full summaries of all the communications in the general meetings and the sections, with photographs of most of the speakers, and of operations, exhibits, etc. It also gives the resolutions adopted in the different sections and general meetings. The price is 5 pesetas. The daily papers of Madrid devoted large space to the congress, reproducing in full the principal addresses.

Typhus Fever in Spain.—In connection with the prevalence of typhus in Spain, it is stated that an epidemic of this disease developed in the provinces of Granada and Almeria in southern Spain. It was found that no delousing was being practiced, and that the disease was being spread by beggars traveling around. The Superior Board of Health sent a commission to those towns to organize the sanitary measures to be taken. Among these were the establishment of places to isolate these patients and of delousing plants, and the division of the affected provinces into two districts, each in charge of the representative of the Superior Board of Health. Since

this campaign was begun, the number of cases and deaths caused by the disease has decreased.

Overcrowding of the Profession at Vienna.—A letter in the *Deutsche medizinische Wochenschrift* for April 24 states that there are now 4,000 physicians in Vienna, while the highest number before the war was 2,800. In 1914, there were 6,223 deaths from tuberculosis; the record was 11,728 in 1918. The letter states further that the German Austrians lost 212 per thousand men between 19 and 53, while the Austrians of races other than German lost only 90 per thousand. The writer adds that every one in Vienna is hungry except the "Rote Garde." They are allowed 4,500 calories a day while the rest of the populace has to be content with 1,500 or 1,600. Even in the hospitals and other institutions no more than this is obtainable. There are still 30,000 dogs in Vienna, it is said, but there were 80,000 at the onset of the war; most of the others were stolen and eaten.

School Notes from England.—At a recent meeting of the London County Council Education Committee, it announced that three new open-air schools would be opened shortly, that sites had been acquired for seven such schools and that more are still contemplated. It was agreed that all schools shall be furnished with baths.——The committee has also under view the arrangements for the supply of spectacles for school-children.——The official return of the number of London children of the elementary school class shows a decrease of 41,994 in the last four years. The greatest proportionate decrease, 17,155, is in children between 3 and 5 years of age. For this abnormal decrease the outstanding reasons are said to be the decline in the birth rate during the past decade; the largely increased death rate during the year ended March, 1919; the migration of large families because of air raids and inability to return by reason of lack of housing accommodation and their replacement by smaller ones; the conversion of residential property into business premises; the fact that many families, owing to better financial prosperity, occupy more rooms than formerly, and the decrease in the East End alien population, owing to the restriction on immigration.

Government Services

Personnel of the Medical Department

For the week ending September 19, there were 6,242 officers in the Medical Corps, a decrease of 356 from the previous week. The Medical Reserve Corps contained 3,414. The total number of physicians discharged since the beginning of the war is 25,660.

Major-General Ireland Honored

Major-Gen. Merritte W. Ireland, Surgeon-General of the United States Army, has been made an honorary fellow of the Royal College of Surgeons of Edinburgh, Scotland. At the termination of the war the college offered honorary fellowship to one representative of each group of the medical forces of the British Empire and its allies, Major-General Ireland being selected as the American representative. Major-General Ireland has also been invited to deliver the "Ether Day" address, October 17, at the Massachusetts General Hospital.

Pensions for Civil War Nurses

All army nurses of the Civil War who are receiving a pension or who are entitled to it, would receive the sum of $30 a month, under the terms of a bill introduced in the United States Senate by Senator James Curtis of Kansas.

Legislation to Commission Reserve Officers in Regular Corps

A bill to commission officers of the Medical Reserve Corps in the permanent Medical Corps of the regular army, provided the officers entered active service previous to April 6, 1917, and were within the prescribed age limit at that time and served honorably, has been introduced in the United States Senate by Senator Charles L. McNary of Oregon. A similar measure was recently introduced in the House of Representatives. The permanent commissions would date from the date of the reserve officer's entrance into active service.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA
San Diego—O'Neill, B. J.

CONNECTICUT
New London—Soltz, T.

DISTRICT OF COLUMBIA
Washington—Norris, L. B.

GEORGIA
Atlanta—Irvin, I. W.
Reynolds—Fountain, J. A.

ILLINOIS
Waukegan—Rankin, I. A.
Turner, W. R.

INDIANA
Indianapolis—Hughes, H. G.

KENTUCKY
Louisville—Todd, G. C.

LOUISIANA
New Orleans—Howell, F. A.
Metz, W. R.

MASSACHUSETTS
Quincy—Fornell, C. H.
Springfield—Blair, O. R.

MINNESOTA
Minneota—Larson, G. A.

NEW HAMPSHIRE
Franklin—Child, H. T.

NEW YORK
Bay Shore—Garben, L. F.
Brooklyn—MacEvitt, J. C.
New York—Goodbody, E. J.
Kaplan, H. E.
Walker, A. S.

OHIO
Cleveland—Sibila, A. O.

OREGON
Baker—Blakely, C. L.
Portland—Pomeroy, R. E. A.

PENNSYLVANIA
Braddock—Gardner, C. C.
Philadelphia—Bert, J. B.
Phillips, A. W.

RHODE ISLAND
Providence—Morrissey, J. H.

TEXAS
Galveston—Flautt, J. A.
Meridian—Grimland, G. A.

WISCONSIN
Sawyer—Rogne, C. O.

Foreign Correspondence

MEXICO LETTER

MEXICO, Sept. 14, 1919.

Classes of Clinical Medicine

The governor of the state of Puebla, De Cabrera, ordered the closing of the state college, in which one of the subjects taught was medicine. On this account, the students requested the director of the Military Hospital of that city to allow the teaching of clinical medicine in that institution. The director endorsed the request, and after being approved by the War Department, these classes have begun. It is probable that they will continue to be given as long as the state college remains closed.

Morbidity and Mortality

Judging from the report relating to the month of July, published by the state council, sanitary conditions in this city are satisfactory. There were recorded only 1,061 deaths, of which 309 were due to gastritis and enteritis, 62 to bronchopneumonia, 69 to tuberculosis, 51 to pneumonia and only 3 to typhus fever.

In the district known by the name of La Huasteca, which includes part of the states of Tamaulipas, Vera Cruz and San Luis, malaria has developed in an alarming way, attacking chiefly the soldiers fighting in that region. Typhoid fever has also made its appearance among the soldiers, and as the matter is very important from a military standpoint, the sanitary bureau of the War Department is devoting much attention to the eradication of these diseases.

According to newspaper reports there have been several cases of smallpox in the city of Vera Cruz.

Yellow fever is still present in the peninsula of Yucatan, although there is no definite information as to the number of new cases, or the deaths that have so far occurred.

Personal

Dr. Gregorio Leal died in the city of Managua, Nicaragua, where he had been sent by the Mexican government to establish a Pasteur Institute.——Dr. J. A. Gaxiola, who has the rank of general in the Mexican Army, has been visiting in Mexico City from Los Angeles, where he is now located.——Dr. E. Aragón, professor of legal medicine in the School of Medicine, has been sent by the government to Spain to represent Mexico in the *Fiesta de la Raza*, which will be held in Madrid on October 12.——Dr. C. Hidalgo has been elected president of the senate, and Dr. A. Méndez will act as speaker of the house of representatives during the present month.

Lymphocytosis Among the Syphilitic

Dr. T. G. Perrin has just published in pamphlet form an essay on the above subject presented by him on his admission to the Academy of Medicine. This work contains some

original observations, based on the study of 216 cases, in which there were made a white cell count and classification and the Wassermann, Jacobsthal and Kaplan reactions. Those cases in which the seroreaction is positive according to the first two procedures, or either of them, are considered syphilitic regardless of the clinical data. After recapitulating the conclusions reached on this subject by Patiño, Mayer and Gourdy in the essay presented by them to the Academy of Medicine of Buenos Aires in 1915, and published afterward in *Los Progresos de la Clínica*, and those published by Blumberg in the *American Journal of Syphilis* in October, 1918, Perrin presents his conclusions, which are not in agreement with those of previous workers. In 79 of the 216 cases, the result of the serologic examination was positive, and negative in 137. Among the 79 with the positive reaction there was lymphocytosis only among 49. Among the 137 cases in which the serum reaction proved negative, 81 presented lymphocytosis. The author says that he publishes his conclusions, even if they do not show anything new, because they serve to show the exaggerated dependence placed on anatomopathologic data which may lead to error.

LONDON LETTER

London, Aug. 27, 1919.

Medical Arrangements in the Afghan War

No sooner have the medical arrangements of the great war passed out of discussion than the question of those for one of the frontier wars, of which this country has had so much experience, has sprung up. The unexpected and unprovoked Afghan aggression led to mobilization of a large force, and the operations have revealed a considerable amount of unpreparedness with regard to medical arrangements. A serious feature was an outbreak of cholera, of which there were 1,663 cases at the end of July. There were 0.59 cases per cent. among the British troops and 0.88 among the Indian troops. There is no indication as to the place where the arrangements for water supply were defective. There were six separate lines of operations covering a front approximately 500 miles long. The local water supply was often by means of open irrigation channels, but piped water supply was installed in recognized camps. Cholera is endemic in the civil population in the whole area, and there were large numbers of recently enlisted transport and other followers without any water discipline or ideas of sanitation, and there was absence of supervision owing to shortage of experienced British officers. Arrangements for immediate supply of pure water in such a terrain were impossible to supervise in the case of troops compelled to march in conditions of abnormal heat. Yet the incidence of disease was very small among the British troops. Protective measures were initiated before the outbreak. A supplementary piped water supply was commenced, but the work was hampered by shortage of pumps and pipes demanded from England, Mesopotamia and elsewhere. Water for the troops was chlorinated. The wounded appear to have been well cared for. The majority of those wounded on Khyber line were in the Station Hospital Peshawar, within a few hours of the action. At no time was there shortage of rations. It must be remembered that the Afghan outrage came on us at a time when the personnel and munitions of war in India had been reduced to the narrowest margin of safety to support the forces in the Near East and France. The desertion of the frontier militia and the threat of a rebellion in Peshawar deprived us of the measure of security on which we counted to cover our concentration. Consequently, instead of being able to proceed on a deliberate system of rapid concentration we had at once to send troops to every part of the frontier and reverse our prearranged plan which provided that the dispatch of stores and equipment should precede that of troops. As regards hospitals, there are no public buildings on the northwestern frontier of India capable of immediate occupation. There was no alternative but the evacuation of barracks and their conversion into hospitals. This had been planned in peace time, but could not be rapidly carried out, especially during the hot weather. The medical service appears to have done everything possible in the midst of difficulties for which it was in no way responsible. There were, of course, discomforts in the rapidly improvised hospitals. The loss from sickness was very low considering the trying climate. The total admissions from May 15 to August 9 were at a rate per thousand of 4.98 British and 20.97 Indian. The manner in which the cholera was suppressed is claimed as a triumph; 100,000 men were inoculated in one fortnight.

German "Science"

Mr. Adolphe Smith, a journalist who has represented the *Lancet* at many international medical congresses, has contributed to the *Times* a series of articles on the Pan-German Internationale. Since 1882 he has acted as official interpreter at all the social congresses called the "Internationale" and, therefore, writes with the authority of an eye witness. He shows that as the military caste of Germany worked for world dominion by arms, so Marx and his subordinate Engels worked for a similar end by obtaining control over the labor organizations of the world. To delude the foreigner, the German socialists declared themselves the enemy of militarism. But the war has shown that, with few exceptions, they supported German war aims while at the same time endeavoring to weaken the nations opposing Germany by fostering socialism among them. Mr. Smith found at the international medical congresses the same motives at work. At the International Medical Congress in London, in 1881, the Germans took a proper share as representatives of a nation of the first rank. There the great men were Pasteur, Lister, Paget, Bigelow and Virchow. But at the subsequent congresses the German professors became more and more overbearing, and their methods conflicted with the free spirit of scientific discussion. Mr. Smith writes thus: "It has been my privilege to attend nearly all the international congresses of hygiene, and several of the international congresses of medicine, of the medical press, of the war against tuberculosis, and of other kindred movements. Here, among members of the liberal professions as in working class congresses, the German delegation acted with the same military discipline. The science which they represented was a secondary consideration; the interests of Germany, the advertising of German achievements, not to say German goods, was the first object. In all fields of action the German as an internationalist needs to be studied with far greater care than as yet has been bestowed on him. We must no longer be deceived by the nominal purpose of a congress; the political interests that are hidden behind must be fathomed. Science is supposed to recognize neither frontier nor private interests, but to be devoted to the pursuit of truth. To the German it would appear as if the sole mission of science is to serve Germany. And this is pan-Germanism, not internationalism." Referring to the question of tuberculous meat, Mr. Smith puts the action of the Germans in a very sinister light. He writes: "The danger or otherwise of consuming tuberculous meat was of very material importance to the German agrarian party, for a large proportion of German cattle was known to be tuberculous. This party held office when at a great international scientific congress it was my good fortune to discover and to denounce intrigues that had for their purpose the adoption of a resolution exonerating the specific germ of bovine tuberculosis. This maneuver had been promoted by the German delegation and the official representatives of the German government." Mr. Smith is referring to the International Congress on Tuberculosis held at Washington in 1908, and his protest was published in the *Lancet* at the time. Commenting on his present series of articles, the *Lancet* recalls the sensation made by Koch's statement at the British Congress on Tuberculosis that the infection of human beings by bovine tuberculosis is very rare, and his pronouncement: "I should estimate the extent of infection by the milk and flesh of tuberculous cattle, and the butter made from their milk, as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it." The *Lancet* adds: "It was charitably supposed that the distinguished scientist had slipped into error. No doubt he had; but we may perhaps be forgiven for wondering if the exact nature of the error was correctly diagnosed at the time."

Marriages

Heinrich Edmond Franck, Sacramento, Calif., to Miss Anna Theresa Heiligers of Aachen, Germany, August 15.

Theodore Higgins Sweetser, Minneapolis, to Miss Marion I. Morrow of Davenport, Iowa, September 3.

Victor Bayard Seidler to Miss Eleanor Dickson, both of Montclair, N. J., September 6.

Albert Zingher to Miss Anna L. Cherey, both of New York, September 7.

Anson M. Cameron to Miss Alta Stevens, both of Chicago, September 20.

Deaths

Benjamin Buck Wilson, Philadelphia; University of Pennsylvania, Philadelphia, 1850; aged 90; who at the outbreak of the Civil War, organized a military company in the village of Bustleton, was captain of U. S. Volunteers; organizer of the Alexander Hospital, New Orleans, and then in charge of the Stanton Hospital, Washington, D. C.; and was mustered out of the service at the close of the Civil War with the rank of lieutenant-colonel; from 1867 to 1883 surgeon to the Woman's Hospital, and professor of surgery in the Woman's Medical College of Pennsylvania, Philadelphia; for ten years surgeon to the Howard Hospital, and for more than thirty years a member of the surgical staff of the Jewish Hospital, Philadelphia; a member of the Association of Military Surgeons of the United States; died at his home, August 28.

Fred Perkins Lierle, Marshalltown, Iowa; Rush Medical College, 1894; aged 47; a member of the Iowa State Medical Society; and once secretary of the Marshall County Medical Society; a specialist in diseases of the eye, ear, nose and throat; consulting oculist to the Iowa State Soldiers' Home; oculist and aurist to St. Thomas' Hospital, Marshalltown; formerly local surgeon of the Illinois Central system; health officer of Marshalltown, and coroner of Marshall County; died in the Kenilworth (Ill.) Sanitarium, September 10, from pernicious anemia.

Joseph Aloysius Kenefick ● New York City; Harvard University Medical School, 1890; aged 58; a member of the American Laryngological, Rhinological and Otological Society, American Otological Society and New York Academy of Medicine; formerly assistant surgeon to the Manhattan Eye, Ear and Throat Hospital; assistant laryngologist to Cornell University; aural surgeon to the New York Eye and Ear Infirmary, and otologist and laryngologist to the New York Foundling Hospital; died in Lawrence, Mass., September 10.

Henry Hooper ● Chicago; Harvard University Medical School, 1869; aged 75; for half a century an esteemed and beloved practitioner of Chicago; emeritus professor of obstetrics in the Chicago Policlinic; obstetrician to Passavant Hospital, and St. Mary's Maternity Hospital for many years; treasurer of the Policlinic and Henrotin hospitals; died at his home, September 17.

Jay Hobart Egbert ● Willimantic, Conn.; Dartmouth Medical School, Hanover, N. H., 1891; aged 50; oculist and aurist to St. Joseph's Hospital, Willimantic; assistant surgeon to the eye department of Cornell University Medical College, New York; a member of the medical staff of the United Fruit Company; died in Lima, Peru, S. A., August 27, from ptomain poisoning.

Howard Kennedy Hill, Philadelphia; University of Pennsylvania, Philadelphia, 1903; aged 40; a member of the Medical Society of the State of Pennsylvania, and a specialist in pediatrics; a noted athlete and secretary of the Athletic Association of the University in 1907; died in the Presbyterian Hospital, Philadelphia, September 11.

Charles E. Congdon, Jamestown, Calif.; University of Louisville, Ky., 1894; aged 54; a member of the Medical Society of the State of California; formerly health officer of San Francisco County; died at San Francisco, September 6.

William Thomas Breeland, Allendale, S. C.; Medical College of the State of South Carolina, Charleston, 1856; aged 87; surgeon in the Confederate service during the Civil War; died at the home of his daughter in Laurens, S. C., August 20.

Ambrose Kasson, Bath, N. Y.; University of Buffalo, N. Y., 1873; aged 70; a member of the Medical Society of the State of New York; a specialist on diseases of the eye, ear, nose and throat; died at his home, September 1.

Job E. W. Smith, Waycross, Ga.; Vanderbilt University, Nashville, Tenn., 1882; aged 64; for several years chairman of the board of education of Waycross; died at his farm near that city, September 6, from cerebral hemorrhage.

Didymus Thomas, Oldtown, Tenn.; Hospital College of Medicine, Louisville, Ky., 1890; aged 50; died at his home, September 13, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent.

Clark T. Hamilton, Huntington, N. Y.; New York Homeopathic Medical College, New York City, 1865; aged 87; for nearly forty years a practitioner of Brooklyn; died at the home of his son in Huntington, September 11.

Edwin E. Allison, Hammondton, N. J.; University of Pennsylvania, Philadelphia, 1895; a member of the local board of education; died in the Lankenau Hospital, Philadelphia, August 27, a week after a surgical operation.

John Milton Garratt ● Buffalo; University of Buffalo, 1897; aged 54; a specialist in roentgenology; consulting roentgenologist to the J. N. Adam Memorial Hospital, Perrysburg, N. Y.; died at his home, September 6.

Christian Christensen ● La Crosse, Wis.; University of Christiania, Norway, 1879; aged 66; one of the founders of the Lutheran Hospital, La Crosse; died at his home, September 7, from carcinoma of the stomach.

Grove Heman Rathbun ● Fremont, Neb.; University of Nebraska, Omaha, 1902; aged 38; who was honorably discharged as capain, M. C., U. S. Army, Dec. 23, 1918; died in Clarkson Hospital, Omaha, September 5.

Arthur Vincent Fray ● Chicago; Jenner Medical College, Chicago, 1906; aged 35; a specialist in diseases of the eye, ear, nose and throat; died in St. Luke's Hospital, Chicago, September 7, from carcinoma.

John Richard McMurdo, San Francisco; University of California, San Francisco, 1891; aged 64; a member of the Medical Society of the State of California; died at his home, in August, from myocarditis.

Frank Morgan Storer ● Wilkinsburg, Pa.; University of Pittsburgh, 1899; aged 48; a specialist in surgery; assistant professor of anatomy in his alma mater; died at his home, September 9, from diabetes.

Levy Pierce Hammond, Rome, Ga.; New York University, New York City, 1880; aged 63; a member of the Medical Association of Georgia; died in St. Joseph's Hospital, Atlanta, Ga., August 25.

James Burris Wood, Oakland, Calif.; University of Pittsburgh, 1892; aged 51; a member of the Medical Society of the State of California; died at his home, September 9, from pneumonia.

David Gootenberg ● Staten Island, N. Y.; Cornell University Medical College, New York City, 1908; aged 32; died at his home in Stapleton, S. I., September 13, from heart disease.

Juliet H. Severance, New York City; New York Hygeio-Therapeutic College, New York City, 1857; aged 86; died at the home of her daughter in New York City, September 2.

James C. Cooper, Baltimore (license, Maryland, years of practice); aged 52; a practitioner for twenty-five years; died, August 20, on a yacht at Crisfield, Md., from acute gastritis.

Theodore S. Thomas ● Cuba, N. Y.; University of Buffalo, 1882; aged 58; at one time health officer of Allegany County; died at his home, September 1, from heart disease.

Thurston H. Rowles, Bellaire, Ohio; Ohio Medical University, Columbus, 1896; aged 68; died at the home of his sister on Wheeling Island, September 6, from pneumonia.

Joseph A. Burgoon, Pittsburgh (license, Elk and Clarion Counties, Pa., 1877); aged 78; for fifty-six years a practitioner; died at his home, September 9.

Edwin Jay Fisk, Troy, N. Y.; Albany (N. Y.) Medical College, 1871; aged 70; city physician of Troy for eight years; died at his home, August 31.

Emma A. Whitney, Muncie, Ind.; Cleveland University of Medicine and Surgery, 1886; aged 64; died at her home, May 29; from carcinoma of the rectum.

John C. Helper, Woodriver, Ill.; Eclectic Medical Institute, Cincinnati, 1881; aged 61; died at the home of his daughter in Abilene, Kan., September 1.

George S. Gunderson, Milwaukee; Marquette University, Milwaukee, 1916; aged 32; died at his home, August 10, from cerebral hemorrhage.

William Steele Moat, Philadelphia; Hahnemann Medical College, Philadelphia, 1876; aged 79; died at his home, September 5, from peritonitis.

William O. Skeels, Alliance, Ohio; University of Wooster, Cleveland, 1875; aged 60; died at the home of his son in Alliance, September 10.

James C. Alderson ● Wausau, Wis.; Rush Medical College, 1897; aged 46; died at his home, August 17, from tubercular laryngitis.

T. B. Weir, Dayton, Tenn. (license, Tennessee, 1889); aged 63; died at his home near Dayton, August 16.

● Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

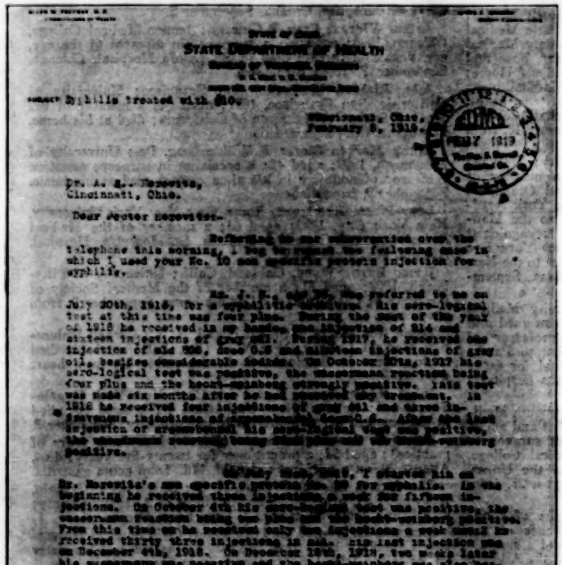
"PROTEOGENS"

Our readers will remember the recent correspondence published in THE JOURNAL of July 26 and August 13, by Dr. A. W. Freeman, Commissioner of Health of the State of Ohio and the Wm. S. Merrell Co. The letters dealt with the use that had been made by the Wm. S. Merrell Co. of a letter, written on the official stationery of the Bureau of Venereal Diseases of the State Department of Health of Ohio, puffing one of the company's proprietary remedies—Proteogen No. 10.

Dr. Freeman wrote to THE JOURNAL calling the attention of the profession to the use of this letter and explaining that the letter was merely the expression of opinion of an individual, and not an expression from the State Department of Health. The Wm. S. Merrell Co. took exception to certain inferences made in Dr. Freeman's letter and in the course of a letter to THE JOURNAL regarding this, incorporated the contents of the testimonial letter. THE JOURNAL in publishing the Merrell letter omitted this testimonial on the ground that the *contents* of the letter had no bearing on the question under discussion.

We have now received a letter from the company protesting against this omission. THE JOURNAL, therefore, takes this opportunity of briefly restating such facts as it has been able to get regarding the entire matter and publishing the letter. The facts are as follows:

1. In February of this year a Cincinnati physician, Dr. C. J. Broeman, wrote to Dr. A. S. Horovitz relative to alleged results with Proteogen No. 10. The letter was written—without authority—on the official stationery of the Bureau of Venereal Diseases of the State Department of Health of Ohio.



STATE DEPARTMENT OF HEALTH

Columbus, Ohio,
February 8, 1919.

Dr. A. S. Horovitz,
Cincinnati, Ohio.

Dear Doctor Horovitz:-

Referring to our conversation over the telephone this morning, I beg to submit the following case in which I used your No. 10 non specific protein injection for syphilis.

Mr. J. F. [illegible] was referred to me on July 30th, 1918, for a syphilitic condition. His serological test at this time was four plus. During the rest of the year of 1918 he received in my hands one injection of 914 and sixteen injections of Gray oil. During 1919, he received one injection of 914, four 0.3 and nineteen injections of Gray oil, besides considerable bismuth. On October 30th, 1919 his sero-logical test was positive, the Wassermann reaction being four plus and the Hecht-Weinberg strongly positive. This test was made six months after he had received any treatment. In 1918 he received four injections of Gray oil and four injections of Neosalvarsan intravenously. [illegible] After the last injection of Neosalvarsan his serological test was positive, the Wassermann reaction being [illegible] and the Hecht-Weinberg positive.

On May 30th, 1919, I started him on Dr. Horovitz's non specific protein No. 10 for syphilis. In the beginning he received three injections a week and fifteen injections. On October 4th his serological test was positive, the Wassermann four plus and the Hecht-Weinberg strongly positive. From this time on he received only two injections a week until he received thirty three injections in all. His last injection was on December 4th, 1918. On December 18th, 1919, two weeks later his Wassermann was negative and the Hecht-Weinberg was also negative. After the fourth injection he had quite a good reaction. Outside of this one reaction, the injections were well borne causing no three pain. Will go another Wassermann on him on about the 10th of this month.

Very truly yours,

Reproduction (reduced) of one of the photographic copies sent out by the Wm. S. Merrell Co. to its Proteogen detail men to be shown to physicians. While the letter is a private one, it was written (without authority) on official stationery. Some physicians were misled into thinking that it was an official endorsement of Proteogens. The Merrell concern denies any intention to mislead and claims that it was interested only in the *contents* of the letter!

2. The Wm. S. Merrell Co. had linen mounted photographs made of Dr. Broeman's letter and distributed them to their Proteogen detail men. Accompanying these photographic copies was a communication to these detail men describing the photographed letter as one written by:

". . . a Cincinnati physician who is now Acting Assistant Surgeon U. S. Public Health Service, cooperating with the Bureau of Venereal Diseases of the Department of Health of the State of Ohio."

3. The right-hand top corner of the official stationery as can be seen by the reproduction on this page, bore the name of "James D. Bauman, Deputy Commissioner." Dr. Broeman's signature was rather illegible and could easily be mistaken, by those not knowing the handwriting of either man, for the signature of Deputy Commissioner Bauman. In at least one instance it was so mistaken, and the physician who was misled wrote to the Director of the Bureau asking whether the testimonial for Proteogen No. 10 which had been shown him by the Merrell detail man was really an official communication.

4. On May 15, 1919, Commissioner of Health Freeman wrote to the Merrell Co. stating that he had been informed that one of the Merrell representatives was using as an advertisement a letter bearing the letterhead of the Bureau of Venereal Diseases of the State Department of Health and what purported to be a report signed by "Mr. Bauman, Deputy Commissioner."

5. On May 19 the Wm. S. Merrell Co. wrote Dr. Freeman that he was certainly mistaken in regard to the use of any "report signed by Mr. Bauman." Dr. Freeman then sent to the company the letter he had received from the physician who had mistaken Broeman's letter for an official letter by Bauman. Although it would seem that this letter and Commissioner Freeman's protest should have made plain to the Wm. S. Merrell Co., the fact that the letter, incorrectly referred to as Mr. Bauman's was in reality Dr. Broeman's, the company remained silent regarding its use of the Broeman letter and, on May 22, merely reiterated that there had been "no letter circulated by this company containing a testimonial of your Mr. Bauman." On May 28 (six days later) the Merrell company sent to its Proteogen detail men another general letter, "for personal use of agents," in which it again called their attention to the "photographic copy mounted on linen" of Dr. Broeman's letter. This communication to the detail men also declared that it "has been suggested that the further use of Dr. Broeman's letter might antagonize the State Department of Health" and,

therefore the detail men were told to "discontinue using the photographic copy in question" and to return the photographs to the head office.

Here, briefly, are the bald facts in the case. The essential point at issue is whether these photographic copies of Dr. Broeman's letter would or would not be likely—whether or not they were so intended—to mislead physicians into believing that the endorsement was an official one by the State Board of Health rather than an individual one. One can but wonder why, if, as the Merrell company so vehemently asserts, there was no intention of misleading physicians on this point, the company should have gone to the trouble and expense of *photographing* the entire letter, including the letterhead, rather than making typewritten or mimeographed copies of the *contents* of the letter.

THE DIRECT SALES COMPANY

During the past four or five years, THE JOURNAL has had inquiries similar in effect to this, just received from Dr. E. P. Jewett of Gardner, Mass.:

> "Will you kindly inform me regarding a drug manufacturing company by the name of the Direct Sales Company, Buffalo, New York? Are their products standard and reliable so far as you know?"

The Direct Sales Company, Inc., Buffalo, has according to its letterheads, the following officers:

GEO. J. DOTTERWEICH, President and Treasurer,
C. K. DOTTERWEICH, Vice-President,
LOUIS B. SEUFERT, Secretary.

This concern circularizes physicians and emphasizes that it sells "Only by Mail." It also features a "profit sharing rebate" scheme whereby purchasers receive a coupon representing 10 per cent. of the invoice value of each purchase. After $100 worth of merchandise has been purchased the $10 worth of coupons when "presented for redemption at one time" will be "honored as cash"—presumably on the purchase of additional goods.

The Direct Sales Company catalogues have, for some years, carried a guaranty, which reads, in part:

> "We absolutely guarantee all preparations to be in exact accordance with the National Pure Food and Drugs Act, June 30, 1906.
> "We also absolutely guarantee all preparations bearing our label to be equal, if not superior, to any on the market."

In one of the *Quarterly Bulletins* of the State Board of Health of New Hampshire, issued last year, this paragraph appeared:

"The Direct Sales Company, Inc., Buffalo, N. Y., is a pharmaceutical concern which until recently has done business direct with New Hampshire physicians. In two or three instances complaints have been received by this department that the preparations sold seemed to be lacking in potency. Sometime ago a physician sent us a specimen of codein sulphate tablets, one-fourth grain, concerning which he was suspicious, admission being made that the price paid was very much less than current quotations. The amount of codein sulphate actually found per tablet proved to be but one-sixteenth grain. Later on, having subsequently received a new lot from this source, the same physician sent us a second sample, the composition of which was found to be practically identical with the first. Acting under the federal law, 500 lot packages of the following preparations were next purchased of the company direct, the analytical results indicating serious deficiency in every case, as follows:

"Tablets salicylic acid, 5 grains . . . 1.72 grains found.
"Tablets acetylsalicylic acid, 5 grains . . . 2.31 grains found.
"Tablets acetanilid, 3 grains . . . 1.88 grains found.
"Tablets codein sulphate, ¼ grain . . . 1/15 grain found.
"Tablets nux and pepsin No. 2, claiming pepsin 1 grain, extract nux vomica, 1/10 grain, found to have a gross average weight per tablet of only 1.17 grains, 0.54 grains of which was represented by sugar and other medicinally inert material.
"Tablets Infant's Anodyne (Waugh), showed serious discrepancy from formula."

The *Bulletin* added the statement that, as the company could not be reached under the New Hampshire laws, the federal authorities were appealed to. The result of this appeal appeared in *Chemical Supplement 54*, issued Aug. 21, 1918, by the Bureau of Chemistry of the U. S. Department of Agriculture. This government bulletin contained Notice of Judgment No. 6193, which describes cases of adulteration and misbranding of some of the drugs put out by the Direct Sales Company. Briefly, it may be said that some 2 grain acetanilid tablets sold by this concern were found by the government chemists to contain, roughly, about 1⅛ (1.61) gr.; some ¼ grain calomel tablets were found to contain only about 1/6 (0.163) gr.; some 1 grain quinin sulphate tablets were found to have only about ⅔ (0.63) gr.; some 2½ grain salol tablets contained only about 1½ (1.39) gr.; some 5 grain sodium salicylate tablets contained less than half that amount (2.32 gr.). In addition, the federal chemists found that some Elixir of Iron pyrophosphate Quinin and Strychnin (*Elix. Ferr. Pyrophos. Quin. et Strych. N. F.*) fell considerably below the standard of strength laid down by the National Formulary by having less than ⅛ the amount of quinin sulphate which the official standard calls for, and only about ⅓ the amount of sugar, saccharine, which is not a normal ingredient of the official preparation, having been substituted for part of the sugar. The chemists found, too, that some hydriodic acid sold by the same concern, instead of containing, as the label declared and as the United States Pharmacopeia requires, 1 per cent. of absolute hydriodic acid, contained less than one half of 1 per cent. The Direct Sales Company pleaded guilty in this case and was fined $700.

Correspondence

PNEUMONIA AMONG PORTO RICAN LABORERS

To the Editor:—It was with interest that I read in THE JOURNAL, July 19, 1919, an article entitled "Type I Pneumococcus Among Porto Rican Laborers." The summary states that "Porto Ricans under favorable conditions are susceptible to lung infection by the Type I pneumococcus. The disease pursues a typical course, accompanied by a bacteremia in about the same proportion as among white persons."

Do the authors of the article wish to exclude all Porto Ricans from the white race, or may we take it as a lack of information? Mr. Fred K. Fleagle, dean of the University of Porto Rico some years ago, who has lived in this island for a number of years, has said: "The island of Porto Rico, covering an area of 3,500 square miles, had in 1910 a total population of 1,118,012. The population is as follows: pure white persons, 65.5 per cent.; mulattoes, 30 per cent.; black, 4.5 per cent. It is 98.9 per cent. native and 1.1 per cent. foreign born." I here add that the Porto Rican laborers who availed themselves of the magnificent opportunity to go to the expedition and that were fortunate enough to be treated medically by the writers were for the most part negroes or mulattoes. Concerning the white part of the population, they are thoroughbred, and the best Spanish blood runs through their veins; many are of noble descent.

I object to the generalization, and beg that a correction be made.

C. M. DEL VALLE, M.D., Santurce, San Juan, Porto Rico.

"ABDOMINAL SURGERY UNDER LOCAL ANESTHESIA"

To the Editor:—In THE JOURNAL, Sept. 6, 1919, Dr. Lucius F. Herz of New York criticized the pneumatic injector that I devised for the introduction of local anesthesia. He asks why such a "complicated" apparatus as mine is necessary, and he furnishes an illustration of an apparatus which he states will obtain the same results. He then asks "what could be simpler or what can be more beautifully efficient" than the apparatus he illustrates. In answer, I would say

that many years of careful experimentation and practice have shown that a pressure of from 30 to 75 pounds is necessary to introduce local anesthesia solutions into the various tissues through a long, fine needle.

Dr. Herz states that this can be done with his instrument. In order to do so, I believe he would have to substitute for his ounce bottle filled with mercury at least a keg of nails. Briefly, the apparatus which he illustrates was the first model used by me some fifteen years ago. It was discarded, not because it was too simple, as simplicity is much to be desired, but for the reason that it was inefficient.

ROBERT EMMETT FARR, M.D., Minneapolis.

DR. NOGUCHI AND THE WASSERMANN TEST

To the Editor:—On page 635 of THE JOURNAL, Aug. 23, 1919, appears a statement credited to me to which I should like to invite attention because as it stands it is very misleading. The statement should read: "I have been able to increase the sharpness of the reaction nearly four times by using a slowly mixed (turbid) emulsion of acetone insoluble lipoids as antigen."

HIDEYO NOGUCHI, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VACCINE AS A PROPHYLACTIC IN INFLUENZA

To the Editor:—I am chief surgeon for a large steel industry in Canton, and desire to do all in my power to prevent the threatened recurrence of influenza. What is the status of the various vaccines as a preventive or prophylactic measure? Would you advise their use as a preventive measure, to immunize the workers in the industries?

M.D., Canton, Ohio.

ANSWER.—The status of vaccine therapy as a prophylactic for influenza may be ascertained from the two articles appearing in THE JOURNAL, Aug. 9, 1919: that of E. C. Rosenow and B. F. Sturdivant entitled "Studies in Influenza and Pneumonia: Further Results of Prophylactic Inoculations," and that of G. W. McCoy, director, Hygienic Laboratory, U. S. Public Health Service, on "Status of Prophylactic Vaccination Against Influenza." In brief, the conclusion of Rosenow and Sturdivant is: "It appears from all of the facts at hand that by the use of a properly prepared vaccine it is possible to rob influenza of some of its terrors." On the other hand, McCoy states: "The general impression gained from uncontrolled use of vaccines is that they are of value in the prevention of influenza; but, in every case in which vaccines have been tried under perfectly controlled conditions, they have failed to influence in a definite manner either the morbidity or the mortality." To make a conservative statement: The use of vaccine as a prophylactic in influenza is an experiment.

PASTEUR LABORATORIES RAT VIRUS

To the Editor:—Can you give me information as to the organism found in the raticide known as Danysz virus or the similar preparation put out by the Pasteur Company? I have been unable to find references to this method of exterminating rats in the literature at my disposal.

D. H. DOWNEY, Columbus, Ohio.

ANSWER.—We presume by "Pasteur Company" our correspondent means the Pasteur Laboratories of America, a New York concern which advertises a preparation for the scientific extermination of rats and mice, stating: "It is distributed on bait and causes a contagious and mortal disease that only affects rodents. Both the virus and disease are harmless to domestic animals, pets, game, poultry and man."

According to Jordan ("General Bacteriology," 1918, p. 295), Danysz (*Ann. de l'Inst. Pasteur*, 1914, p. 1943) isolated this organism from an epidemic among harvest mice. The organism belongs to the colon typhoid group of bacilli. Under the name of Danysz virus it has been widely used in attempts to exterminate rats. The virus does not seem to be readily transmitted from rat to rat under natural conditions, and Jordan believes that its practical value is not so great as often claimed. It cannot be said to be altogether harmless to man. McFarland ("Pathogenic Bacteria and Protozoa," 1916, p. 630) states that this organism "is, however, too uncertain in action to be relied upon for destruction of rats."

GASOLINE INTENSIFIERS—TANKII TABLETS

To the Editor:—I am enclosing an advertisement which I want to bring to your notice and wish you would reply in THE JOURNAL as to the value of these preparations. Kindly omit name.

C. K. J., Burlington, Vt.

ANSWER.—The advertisement carries the statement that "Tankii contains neither acid, alcohol, ether or camphor" and tells how "Dr. F. T. Kidder" received much power from the gasoline in which he used Tankii. Several years ago, the North Dakota chemists analyzed these tablets and found them "to consist essentially of naphthalene perfumed with oil of citronella" (Gasoline Savers, the *Druggists Circular*, July, 1916, p. 416). Naphthalene is also the essential constituent of other tablets for addition to gasoline, among them being "cheap gas" and "Inajiff" (THE JOURNAL, Sept. 16, 1916, p. 897). In *The Chicago Chemical Bulletin* (July, 1918, p. 143) an abstract of the annual report of the director of the Bureau of Standards concerning gasoline intensifiers, stated:

> There are a number of materials on the market known as gasoline intensifiers for which the claim is made that when added in small quantities to gasoline, an increased engine efficiency is secured. Six of these materials were tested with a six cylinder automobile engine driving an electrical absorption dynamometer. A sample of gasoline alleged to be treated by a secret electrochemical process was tested in the same way. The apparatus used was very sensitive and capable of indicating small differences in power developed, but in no case was there any noticeable increase in power or efficiency of the engine when using the treated gasoline, as compared with its performance when using straight gasoline under the same operating conditions.

As THE JOURNAL has stated previously, naphthalene, because of its high carbon content, when dissolved in gasoline, does add some energy; but its solubility is so low that the gain is negligible. Certainly the addition of the few tablets recommended is so small that the effect would not be noticeable. Furthermore, if the addition of the small quantity did produce appreciable augmentation of energy, why not buy naphthalene in the form of "moth balls"? A further disadvantage of naphthalene in explosion engines was pointed out by F. W. L. Tyderman (THE JOURNAL, Oct. 14, 1916, p. 1174).

DRESSING FOR LABORATORY TABLES

To the Editor:—Some time ago, if I am not mistaken, there appeared in this department of THE JOURNAL a description of a method for finishing the tops of laboratory desks. Can you supply me with the formula?

D. W. CARTER, JR., M.D., Dallas, Texas.

ANSWER.—As considerable time has elapsed since we published the formula for an ebonizing preparation to render laboratory tables resistant to staining or corroding chemical reagents we repeat it herewith:

Solution A:	
Copper sulphate and potassium chlorate, each	125 gm.
Water	1,000 gm.
Boil till salts are dissolved.	
Solution B:	
Anilin hydrochlorid	150 gm.
Water	1,000 gm.
or:	
Anilin	120 gm.
Hydrochloric acid	180 gm.
Water	1,000 gm.

Two coats of Solution A are applied while hot, the second as soon as the first has dried. Two coats of Solution B are applied, and the wood is allowed to dry thoroughly. Next a coat of raw linseed oil is rubbed in by means of a cloth to give a polish. In the treatment with the oil, the deep black color is partially brought out, but this does not uniformly appear until the table has been thoroughly washed with hot soapsuds. The latter treatment removes superfluous chemicals. To keep the table in condition, it is said to be necessary only to wash off occasionally with soap and water and then to rub with oil. The amount is sufficient for 10 square yards of surface.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CALIFORNIA: Sacramento, Oct. 20-23, Sec., Dr. Chas. B. Pinkham, Butler Bldg., San Francisco.

COLORADO: Denver, Oct. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport.

DISTRICT OF COLUMBIA: Washington, Oct. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 14-15. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 7. Hon. Robt. O. Jones, Commissioner of Law Enforcement, Boise.

KANSAS: Topeka, Oct. 14. Sec., Dr. H. A. Dykes, Lebanon.

LOUISIANA: New Orleans, Nov. 4. Sec. Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans. Sec. Homeopathic Board, Dr. F. H. Hardenstein, 702 Maehesa Bldg., New Orleans.

MAINE: Portland, Nov. 11-12. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MICHIGAN: Lansing, Oct. 14-16. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 7-9. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 7-9. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.

NEVADA: Carson City, Nov. 3. Sec., Dr. S. L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 21-22. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. R. E. McBride, Las Cruces.

OKLAHOMA: Oklahoma City, Oct. 7-8. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

UTAH: Salt Lake City, Oct. 6-7. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

WEST VIRGINIA: Charleston, Oct. 14. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

WYOMING: Cheyenne, Oct. 6-8. Sec., Dr. J. D. Shingle, Cheyenne.

California March Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the oral and written examination held at Los Angeles, March 17-20, 1919. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 59 candidates who took the physician's and surgeon's examination, 26, including 12 osteopaths, passed, and 33, including 8 osteopaths, failed. Three candidates were licensed on Army and Navy credentials. One hundred and four candidates were licensed through reciprocity. Five candidates were granted osteopathic reciprocity licenses. Two candidates were granted drugless healer licenses, two candidates received drugless healer reciprocity licenses, and one candidate was granted a license to practice chiropody. In the physicians's and surgeon's examination the following medical colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
California Eclectic Medical College	(1918)	75
College of Phys. and Surgs., San Francisco	(1918)	75.5
Hahnemann Medical College of the Pacific	(1918)	86.7
Leland Stanford Jr. University	(1918)	88.9
University of Illinois	(1918)	89.3
New York Homeopathic Medical College	(1917)	86.4
Johns Hopkins University	(1917)	91
Jefferson Medical College	(1918) 81.9,	90.8
University of Pennsylvania	(1916)	86.9
Queen's University	(1908)	80.3
University of Toronto	(1906)	92.5
National School of Medicine, Mexico	(1911)	*
Tokyo Imperial University	(1913)	76.9
FAILED		
College of Phys. and Surgs., San Francisco	(1918)	68.5
College of Phys. and Surgs., Los Angeles	(1916)	72.6
Tufts College	(1918)	47
Chiba Special Medical School	(1903)	49.7
Kyoto Perfecture Special Medical School (1905) 62.1;	(1912)	66.9
Meiji Medical College †	(1904)	45.3
Nippon Special Medical School	(1910)	71.3
Okayama Special Medical School	(1906)	67.4
Tohoku Imperial University	(1915)	67.3
Tokyo Charity Hospital Special Medical School	(1898)	42.4

* No grade given.
† Not included in the official list of the medical colleges of Japan.

The following failed in the oral examination.

Denver College of Medicine	(1886)	53
Chicago Medical College	(1886)	56
College of Phys. and Surgs., Keokuk	(1877) 67, (1882)	63
Sioux College of Medicine	(1899)	70
Kansas Medical College	(1900)	39
Kentucky School of Medicine	(1898)	55
Detroit College of Medicine	(1896)	48
St. Louis College of Physicians and Surgeons	(1897)	41
University of Missouri	(1898)	71
Long Island College Hospital	(1893)	51
Eclectic Medical Institute	(1901)	58
University of Nashville	(1886)	53
University of Tennessee	(1894)	45

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas		(1910)	Arkansas
College of Phys. and Surgs., San Francisco		(1914)	Nevada
Denver and Gross College of Medicine		(1908), (1909)	Colorado
Gross College of Medicine		(1902)	Washington
Yale University		(1907)	Connecticut
Columbian University		(1903)	Dist. Colum.
Chicago College of Med. and Surgery		(1913, 2) (1917)	Illinois
Chicago Hospital College of Medicine		(1917)	Illinois
College of Physicians and Surgeons, Chicago (1881) Colorado, (1902), (1907) Illinois.			
Hahnemann Medical College, Chicago		(1903)	Iowa
Hering Medical College, Chicago		(1904)	New Mexico
Loyola University		(1916)	Illinois
Northwestern University Medical School (1903) Illinois, (1904) Washington.			
Rush Medical College (1891), (1896), (1903), (1906), Illinois, (1906) Montana.			
Indiana Medical College, Indianapolis		(1907)	Indiana
Indiana University		(1913)	Indiana
Medical College of Indiana		(1902)	Nevada
Drake University		(1910)	Iowa
Keokuk Medical College		(1906)	Iowa
Sioux City College of Medicine		(1909)	Iowa
State Univ. of Iowa Coll. of Homeo. Med.		(1903)	Iowa
State Univ. of Iowa College of Med.		(1902), (1917)	Iowa
Coll. of Phys. and Surgs., Kansas City, Kan.		(1896)	Nebraska
University of Kansas		(1910)	Kansas
Hospital College of Med., Louisville (1903) Colorado, (1904) Massachusetts.			
University of Louisville (1875) Kentucky, (1892) Indiana, (1907) Utah, (1909, 2) Kentucky.			
Tulane University		(1905)	Texas
College of Physicians and Surgeons, Baltimore		(1913)	Utah
University of Maryland		(1913)	Arizona
Boston University		(1906)	Hawaii
College of Physicians and Surgeons, Boston		(1901)	Mass.
Tufts College Medical School		(1898)	Florida
Grand Rapids Medical College		(1902)	Michigan
University of Michigan Homeo. Medical School		(1879)	Indiana
University of Michigan Medical School (1901) New York, (1902) Washington, (1917) Michigan.			
Univ. of Minn. Coll. of Homeo. Med. and Surg.		(1908)	Minnesota
University of Minnesota Coll. of Med. and Surg.		(1902)	Minnesota
American Medical College		(1908)	Missouri
Kansas City Hahnemann Medical College		(1908)	Kansas
Kansas City Homeopathic Medical College		(1897)	Utah
Kansas City Medical College		(1892)	Missouri
Marion-Sims College of Medicine		(1896)	Montana
Nat. Univ. of Arts and Sciences (1913) Tennessee		(1915)	Missouri
St. Louis College of Physicians and Surgeons (1895) Oregon, (1908) Illinois, (1909) Iowa.			
St. Louis University College of Medicine		(1916)	Missouri
University Medical College of Kansas City		(1899)	Arkansas
Washington University Med. School (1903) Illinois, (1904) (1906) Missouri, (1907) Washington.			
John A. Creighton Medical College		(1903) Iowa, (1912)	Nebraska
University of Nebraska		(1909) (1912)	Nebraska
Bellevue Hospital Medical College		(1886) Illinois, (1898)	New York
Coll. of Phys. and Surgs. in the City of New York		(1884)	New York
Columbia University		(1912)	Tennessee
Eclectic Medical College of the City of New York		(1906)	New York
Long Island College Hospital		(1910)	New York
New York Homeo. Med. College and Hospital		(1905)	New York
Ohio State University College of Medicine		(1915)	Ohio
Pulte Medical College		(1905)	Ohio
Starling Medical College		(1905)	Ohio
Starling-Ohio Medical College		(1912, 2)	Ohio
Medical College of Ohio		(1899)	Indiana
Western Reserve University		(1915)	Ohio
Jefferson Medical College		(1888) Illinois, (1903)	Penna.
Medico-Chirurgical College		(1912)	Tennessee
University of Pennsylvania		(1906)	Penna.
Western Pennsylvania Medical College		(1902)	Penna.
Woman's Medical College		(1899) Penna., (1909)	District of Colum.
Meharry Medical College		(1901) Oklahoma, (1915)	Georgia
Memphis Hospital Medical College		(1901)	Arizona
University of Nashville		(1904)	Tennessee

Vanderbilt University	(1917)	Tennessee
Marquette University	(1913)	Wisconsin
Nippon Special Medical School	(1909)	Oregon
McGill University	(1888)	Ohio

College	LICENSED BY ENDORSEMENT OF CREDENTIALS	Year Grad. from	Certificate from
Columbia University	(1904)	U. S. Navy, (1913)	U. S. Army
University of Michigan Medical School	(1908)	U. S. Army	

Book Notices

THE CHEMISTRY OF SYNTHETIC DRUGS. By Percy May, D.Sc., F.I.C. Second edition. Cloth. Price, $3.50. Pp. 250. New York: Longmans, Green & Co., 1918.

Since the first edition of this book appeared in 1911, great advances have been made in our knowledge of the pharmacology of synthetic chemicals, especially in the relationships which certain groups of atoms (organic radicals) bear to physiologic effects. This has led to new therapeutic applications for chemical substances already well known, and to a search for new substances whose therapeutic properties, like their physical characteristics, might be predicted to a considerable extent from the theoretical composition. Before the opening of the world war, most synthetic medicinals were made in Germany, and soon after the war began, a serious shortage in supplies of synthetic drugs developed. This shortage soon stimulated an interest in their manufacture and perfection both in Great Britain and in the United States. The results are reflected in the new edition of this book, which describes many drugs not mentioned in the earlier one. Among these are acriflavine and proflavine; anesthesin; cincophen (atophan); brilliant green; procain and surgical solution of chlorinated soda (Dakin's solution). Also new nonproprietary names are used in place of the German proprietary titles. Examples are barbitone for veronal (barbital, N. N. R.) and kharsivan for salvarsan (arsphenamin, N. N. R.). The chemical nature and method of preparation for many synthetics are described, and attention is given to the reactions taking place between the living organism and the drug wherever these can be traced. The relations between the chemical character of a substance and its pharmacologic action are discussed. Physicians, teachers and students in pharmacology will find this an excellent reference work.

INTRAVENOUS INJECTION IN WOUND SHOCK: BEING THE OLIVER-SHARPEY LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON IN MAY, 1918. By W. M. Bayliss, M.A., D.Sc., F.R.S., Professor of General Physiology in University College, London. Cloth. Price, $3 net. Pp. 172, with 59 illustrations. New York: Longmans, Green and Co., 1918.

The importance of the problem of surgical shock as the result of surgical procedure in time of peace has long been recognized. Renewed interest in an experimental study of its causation and treatment was the result of the past war. Clinicians made a careful study of the abundant material, while laboratory workers searched anew for its cause and devised measures to combat the condition. The results of the latter investigations are incorporated in the present volume in the form of two lectures by Professor Bayliss, chairman of the Special Committee for the Investigation of Surgical Shock and Allied Conditions. Whereas Bayliss admits that the primary cause is still unknown, he feels certain that the most obvious sign of the condition, namely, the low blood pressure and the consequences that result therefrom, must be combated by the best means available after other factors that contribute toward its production (cold, absorption of tissue poisons, deficiency of oxygen) have been counteracted. To counteract the progressively sinking and fatal drop in the general arterial blood pressure the transfusion of human blood is of the greatest value; but since human blood is not available in large quantities (especially during battle) and must be previously tested for its compatibility with the recipient, he turns to the various types of artificial solutions that have been used, and the collected experimental evidence as to their efficacy in cases of surgical or wound shock in which they were tried. The major portion of the first chapter deals then with an evaluation of ordinary saline, Ringer's solution, hypertonic salt solutions, calcium salts, solutions of sodium bicarbonate, and solutions of glucose. Finding them all of no lasting value in raising the arterial blood pressure and maintaining it at a raised level, he turns (Lecture II) to various solutions containing colloid; and finding certain of these solutions of colloid inefficient or even dangerous, he finally presents at great length the wonderful efficacy of gum arabic in physiologic sodium chlorid solution in shock and low blood pressure from other causes. From the perusal of this book it would appear that a most powerful antidote to combat the low blood pressure and its results had been discovered in the appropriate transfusion of gum solutions. Unfortunately, not all surgeons are agreed on the efficacy of such transfusions; for one clinician (Bernheim) has recently stated in a discussion appearing in THE JOURNAL (July 19, 1919, p. 181) that he had "never found a man who had any good to say of it. There are men in this audience whose experience with it proved disastrous. Certain men here have seen deaths from it. It not only did not help, it killed men." If Bernheim reflects the conviction of a great many men who have used gum solution, the chief treatment for shock about which a book was written must be subjected to further experimentation by investigators other than those whose studies, according to Bernheim, "were, apparently, not carried out with an open mind, that overwhelming evidence against the solution was not sufficient to cause its abandonment, instead of promoting futile efforts to improve it" (p. 173). At any rate, a very good outline of the past and present views as to the causation of shock is admirably presented. Aside from the value of the gum treatment of the condition, every surgeon will find the book interesting and instructive. It furthermore contains the most important bibliographic references on the subject.

THE WHOLE TRUTH ABOUT ALCOHOL. By George Elliot Flint. With an Introduction by Dr. Abraham Jacobi. Cloth. Price, $1.50. Pp. 294. New York: The Macmillan Company, 1919.

In spite of the title, which promises by suggestion an impartial discussion of the entire alcohol question, we soon find that our author, the son of Dr. Austin Flint and himself a layman, needs to learn considerably more plain everyday human physiology and also the specific pharmacology of alcohol, before he can begin to discuss his chosen subject. The book certainly contains every talking point that has been raised in favor of the moderate consumption of alcohol. Furthermore, it is plain that on every controversial point the author mentions only evidence favorable to his standpoint. Finally, he sometimes quotes confidently as fact what is absolutely not true. It is the half truth about alcohol presented by one outspokenly in favor of its moderate use. The arguments are often based on incorrect premises leading the educated layman (for whom it was probably written) to accept the false conclusions. The author either lacks the fundamental physiologic and pharmacologic training and knowledge necessary really to discuss his theme as he proposes it in his title, or he avoids using them. The book is written in short, snappy paragraphs, which sustain the interest to the end.

A TREATISE ON ORTHOPAEDIC SURGERY. By Royal Whitman, M.D., M.R.C.S., F.A.C.S., A Director of Military Orthopaedic Teaching. Sixth edition. Cloth. Price, $7. Pp. 914, with 767 illustrations. Philadelphia: Lea & Febiger, 1919.

This edition of Whitman fully maintains the high character that we have learned from previous editions to associate with this work, and quite justifies the imposing inverted typographic trapezoid on the title page containing the list of titles, positions and affiliations attached and subjoined to this distinguished author's name. The conventional classification used in former editions is also used in this one with the addition of a new chapter, No. XXIV, on military orthopedics. This chapter gives very fully the rules of selective service governing orthopedic disabilities, and then takes up the official list of conditions belonging to the orthopedic service mapped out and practiced during the war and subsequent reconstruction. Besides this new chapter practically every section has new and added information. There is no better textbook on orthopedic surgery in any language. The publishers' work is up to their usual high standard.

Social Medicine, Medical Economics and Miscellany

THE AMERICAN MEDICAL ASSOCIATION DESCRIBED FOR ITALIAN READERS

The *Riforma Medica* for June 21 contains an interesting letter from its New York Italian correspondent, most of which is devoted to the medical profession of the United States, but especially to the American Medical Association and its work. From the letter we quote:

". . . In the medical field, all the intelligence, high grade character and worth of the physicians of the United States has taken concrete form in the institution of the largest and most powerful organization of professional men known in any land. It is not possible to study any medical happenings or any medical manifestation in America without seeing evidence everywhere of the marvelous work accomplished by this Association. In fact, it is difficult to find words to express in a fitting manner all that the American Medical Association has accomplished. Those who conceived the broad plan of the Association, who effected its organization, and who have since maintained it on an ever higher level, deserve not only most enthusiastic and sincere praise, but the gratitude as well of the medical profession of every country, for the great good that the American Medical Association has done and will do in the future, exerting a beneficent influence throughout the world.

"In succeeding letters I will speak more in detail of the work of the Association, but I trust that this brief outline will bring home to the readers of *La Riforma Medica* the great significance of this American organization and to give them some insight at least into the peculiarly ingenious methods which have been employed by it in exerting its enormous influence for good. At present I merely give an account of the fight which has been waged against the 'patent medicine' evil and for the improvement of American schools of medicine."

He then describes the unrestricted production of nostrums in America and the blatant advertising, and tells how the American Medical Association bought samples in the market and had them examined and tested, and accused the manufacturers of fraudulent practices as the medicines or the apparatus proved to be different from what was announced in the advertisements and failed to produce the results claimed. "Manufacturers now cannot advertise their promised miraculous cures without being liable to penalty. They have to keep their statements within bounds, and they do not attract the attention of the public as formerly. A large part of the stock of remedies, electric belts, and the like emigrated from America and invaded the European market."

"Of a higher order, from a constructive standpoint, though none the less radical, has been the campaign which has been carried on so vigorously for the improvement of medical education. In another article, at no distant date, I will show that certain of the American schools of practical medical science are models, such as can be found in no other country. There were formerly in America an enormous number of so-called medical schools that were absolutely unworthy of the name. They existed solely for the benefit of a few exploiters. . . . To have organized a campaign in the direction of bringing about a modification of the existing laws so as to bring pressure to bear on these institutions would not have been prudent, for the reason that it might have given the impression that certain schools were trying to monopolize medical instruction to the detriment of other schools and of science in general.

"The American Medical Association adopted a more effectual and a more ingenious system which, besides demonstrating a marvelous spirit of cooperation, showed that the Association was not inspired by a desire for forcible measures no matter how well justified, but merely wished to appeal to the scientific sense and the honest judgment of American medical men. It began by organizing a council of unprejudiced men, who, by their mental attainments, personal culture, and knowledge of conditions in foreign countries, gained by comparative study, were competent for the task before them. This council formulated a standard to which all medical schools should measure up. According as the various medical schools and colleges corresponded to the standard adopted, they were classified as A, B and C schools, and changed to higher grades as they came to conform to the standards. . . . By this means, while upholding the principle of absolute liberty, the Association, in a few years, accomplished the most marvelous results, succeeding in doing away, to a great extent, with the low-standard schools. Of course, it is impossible to destroy utterly an evil which is so solidly entrenched while the public is heedless. . . . I want the Italian medical profession to know that here in America there is a very powerful medical organization which is animated by the highest and most helpful ideals, the American Medical Association. It is always on the alert and always ready to strike, using the weapons of science, with the vigorous support of the honest medical press, and, above all, of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, in case the tentacles of the octopus try to work into action again."

Editorial comment on the letter mentions that one of the tasks proposed by the recently organized Federazione genera'e medica italiana is to keep up this same continual vigilance over the standards in the medical departments of the Italian universities. Many question whether the state and the nation will permit any interference with official educational methods, but the editor declares that the state and nation will be compelled to permit it when the entire body of medical men in the country in one powerful organization demand it and their demands are backed up by the universal recognition of the exalted motives for their action.

RAT EXTERMINATION

In Public Health Bulletin 103, published by the United States Public Health Service, arguments are presented for the elimination of the rat, and methods are given for its destruction. Investigation of the habits of the rat fail to show any justification for its continued existence in civilized communities. In other ages and under different sanitary conditions than now exist, it may have been of some service as a scavenger; but today it would seem to be of little, if any, use even in this capacity. It is impossible to do more than guess at the rodent population of the United States, but a conservative estimate is that there are as many rats in the United States as there are human beings, or over a hundred million. The cost of maintenance is estimated at half a cent a day each, or about $1.82 a year per rat, so that the annual board bill of our rodent population would approximate $182,000,000. This estimate, we presume, does not include property damage.

There are three varieties of rats in American cities, the most common of which is the brown rat, variously known as the Norway rat, barn rat, sewer rat and gray, or wharf rat. The other two varieties are the black rat and the roof, or Alexandrian rat. Owing to the antagonism and the superior fighting quality of the brown rat, however, the two latter species are rarely found in the United States except at seaports. Rats are not native to the United States. They are very prolific, the female rat producing from three to five litters a year, averaging eight to a litter. They are essentially burrowing animals, and live and breed by preference in excavations. They will burrow through any kind of soil and almost through any kind of building material except cement.

Articles damaged by rats include all kinds of grain before and after harvest; eggs and poultry; fruits and vegetables, both growing and stored; flowers, bulbs and shrubbery; all kinds of staples in bags or boxes; all food products in pantries, groceries, meat markets, bakeries, stables and general markets. In addition to food articles, rats also destroy leather goods, books, papers, clothing and fabrics. Some depredations committed by rats are almost unbelievable. Lantz, in Public Health Bulletin 30, reports an Iowa farmer who lost in one winter 500 bushels of corn; another farmer

who lost in one summer between 300 and 400 chicks; and a Washington merchant from whose stores rats in a period of two weeks carried away seventy-one dozen eggs. Rats are transmitters of bubonic plague, tapeworm, trichina and other diseases.

Rat destruction can be successfully carried out in a large city only by the compulsory rat proofing of buildings. They can be destroyed by trapping or poisoning or by the use of cats and dogs. Most authorities agree that all methods except rat proofing are of doubtful value, as partial destruction produces only more favorable conditions for propagation. In rat proofing any building, complete protection of the entire building must be observed, as the smallest opening will permit any building to become badly rat infested. Buildings may be rat proofed either by elevating the structure with open underpinning or by sinking marginal walls of concrete, stone or bricks laid in cement mortar 2 feet into the ground, fitting flush with the floor above. Rat proofing by elevation is applicable only to small buildings. In addition to rat proofing walls, all light shafts, ventilators and open windows should be wire screened, garbage should be kept in a metal water-tight can having a closely fitting lid, and the ground around the building should be kept clean and free from rubbish and devoid of rat harborage in the form of plank walks and plank covering. Rat proofing laws to be effective should provide explicitly the kind of concrete, thickness of floors and other details, as an ineffective rat proofing ordinance is more dangerous than no regulation, since it leads to a feeling of security without adequate protection.

MENTALLY DEFECTIVE CHILDREN IN SUSSEX COUNTY, DEL.

The U. S. Public Health Service and the Children's Bureau have completed a medicopsychologic and social study of mentally defective children in Sussex County, Del., the results of which appear in Pamphlet 7 of the Dependent, Defective and Delinquent Classes Series, Bureau Publication 48. The Public Health Service made mental examinations of children in the schools and of all inmates of the county almshouse. The Children's Bureau made a general survey for the purpose of locating mentally defective children not in the schools, and a social study of the conditions surrounding the children who were diagnosed as mentally defective.

The population of Sussex County for 1910 was 46,413, including 38,475 white persons and 7,938 negroes. The white population consisted chiefly of Americans of English descent. The population is scattered and rural in character. The leading industry is agriculture, the chief products being cereals, vegetables and fruits. The percentage of illiteracy is high, being 10.6 for the county as compared with 8.1 for the state. The county poor house is the only public institution. No outdoor relief is given. Of the thirty-five inmates of the county poorhouse, only three were found to be normal mentally, ten being diagnosed as feebleminded. Six thousand and four white and 855 colored schoolchildren were examined. Sixty-seven, or 1.1 per cent., of white children were found to be mentally defective, and twenty-nine, or 3.4 per cent., of colored children. Nineteen white children and fifteen colored children not in the school were found to be feebleminded, giving a total of eighty-six white and forty-four colored mental defectives. One hundred and eighty-one persons were found mentally defective in addition to those found in the schools and the poorhouse. In all, 257 cases of mental defect were identified. Of the children, 14 per cent. were unable to attend their own personal wants; 60 per cent. were able to help themselves and had no physical handicap. The remainder presented varying degrees of disability. One hundred and fifty, or 78 per cent., of the children lived with their own families, while 22 per cent. were cared for by relatives, foster parents or the public authorities.

Regarding the economic status of the families, fifty-four of the seventy-three white fathers were farmers, two-thirds of them being tenants or farm laborers. Practically all of the colored fathers were tenants or farm laborers. The mentality of the parents varied. In seven families having thirteen mentally defective children, one or both parents were feebleminded. In twenty-eight families, eighteen white and ten colored, one or both parents were classed as illiterate. These twenty-eight families had forty-seven feebleminded children. Thirty-nine per cent. of the white children and 55 per cent. of the colored were capable of doing work under supervision, although the work performed was unskilled and simple in character. Of 144 mental defectives between 12 and 20 years of age, sixty-five were doing independent work or working under supervision. A number of the boys were working at farm labor and were capable of doing good work. Eighteen per cent. of the mentally defective children had exhibited tendencies toward wrong doing or social delinquency in some form. Eleven per cent. were illegitimate.

The conclusions of those in charge of the survey are that almshouses are not suitable places for the care of mentally defective persons; that the care of such persons in rural communities is neglected and little understood; that for many defective persons institutional care is necessary; that the state should make proper provision for such care and for suitable instruction for those children capable of profiting by it, and that public protection demands recognition of the relation between defective mentality and pauperism, degeneracy, crime, alcoholism and other social ills.

Medicolegal

Must Pay for Damage to Property by Pesthouse

(Oklahoma City v. Vetter (Okla.), 179 Pac. R. 473)

The Supreme Court of Oklahoma affirms a judgment in favor of the plaintiff for $1,100 for damages sustained by her by the depreciation of the market value of real estate alleged to be suitable for residential and home purposes and damaged by the defendant by the erection on adjacent property of pesthouses or hospitals for the confinement and treatment of malignant, contagious and infectious diseases. The court says that the contention of the city was that, as the pesthouses were located under statutory authority, they could not be deemed a nuisance, and for that reason the plaintiff had no cause of action against the city. The question was whether the location of the pesthouses "damaged" the plaintiff's property in the sense in which the term is used in the provision of the state constitution that "private property shall not be taken or damaged for public use without just compensation." The conclusion of the court is that depreciation of the value of real property caused by establishing a hospital for contagious diseases, commonly known as a pesthouse, on adjacent land, although under statutory authority, constitutes a damaging of private property for public use, for which compensation must be made, within the meaning of the constitution. That the city, in erecting and operating a hospital for contagious diseases, was exercising a lawful governmental function did not warrant its exercise in violation of the constitutional guaranty to the citizen that private property should not be damaged for public use without just compensation.

Liability for "Felony of Abortion"

(State v. Hawkins (Mo.), 210 S. W. R. 4)

The Supreme Court of Missouri, Division No. 2, affirms a conviction of the defendant, a physician, under Section 4458 of the Revised Statutes of Missouri of 1909, of the "felony of abortion," for which he was sentenced to imprisonment in the county jail for sixty days and to pay a fine of $800. The court says that the defendant corroborated the prosecutrix as to her visit to him, her statement to him of her pregnancy, his examination of her person to ascertain that fact, and his treatment of her; but he denied the use of any hard, pencil-shaped instrument on her person. He further testified that she was not pregnant, but that she was suffering when he treated her merely from delayed menstruation and a relaxed condition of the muscles of the womb and of the ligaments which support it. He

admitted the insertion into her parts of what he called "wool," but he said this was to support the womb, and, inferentially, not to stanch a flow of blood To a physician called in by the prosecutrix on the second day after the operation, she said she disclosed only that she had suffered a miscarriage, whereupon he asked to be allowed to examine the fetus, and, being shown it, remarked, "That's it all right," as to which declaration the prosecutrix was corroborated by the testimony of her mother; but the physician, testifying for the defendant, denied that he found any evidence of a miscarriage, or of the prosecutrix's former pregnancy, and denied stating that when he examined the alleged fetus he admitted its identity as such. He said the prosecutrix was merely suffering from delayed menstruation. The court finds no error in the trial meet for reversal, and holds that, while the prosecutrix was impeached for that, her reputation for chastity was shown to be of the worst, and by divers contradictions, there was yet substantial proof, since the credibility of the witnesses was for the jury, and not for this court.

The provisions of Section 4458 apply not alone to physicians, but to all persons who may commit the offenses therein denounced. The only reference made in the section to physicians is that which makes it a defense if an abortion be committed by a duly licensed physician, or on the advice of a duly licensed physician, when such abortion is necessary to save the life of the woman, or of an unborn and quick child. It was not necessary to charge that the defendant was a licensed physician, if, as was done, it was charged that the abortion was not necessary to save the life of the woman, or the life of an unborn child, and that the defendant had not been advised by such a physician of such necessity for the act charged. If the pleader had charged that the defendant was a licensed physician, then it would not have been necessary either to charge or to prove that he did not act under the advice of a physician.

Section 4458 defines and denounces two crimes: (1) manslaughter in the second degree; and (2) the "felony of abortion." Both of these offenses are committed by identical means; they are differentiated solely by the result. If the woman die, or if, being with a quick child, such child die, the crime is manslaughter in the second degree. If the woman is not in fact pregnant, or if, though pregnant, the child or fetus is not quick, and the woman does not die, the crime is the so-called "felony of abortion." The count of the information on which the defendant was convicted followed the language of the statute, which was sufficient, presenting a sufficient charge of the "felony of abortion" in a case of pregnancy wherein the fetus had not quickened.

Liability of Husband for Medical Services

(Bryant v. Lane (Ala.), 81 So. R. 364)

The Court of Appeals of Alabama says that this action was brought by plaintiff Lane, a physician, to recover for necessary medical attention rendered to the defendant's wife during childbirth and to his minor children, one of whom was the child of which the mother was delivered. It was found by the court that the defendant and his wife were temporarily apart, but were not divorced, and that the defendant had requested the plaintiff not to render any medical attention on his account; that the services rendered were necessary. There was no contention but that the defendant would be liable if the wife had not abandoned him without cause, and the court of appeals holds that the holding of the trial court in the finding of fact that the separation was temporary did not amount to an abandonment. It would be monstrous to lay down a rule that where a woman, in the nervous state incident to pregnancy, leaves her husband who is responsible for her condition, and goes temporarily to the sympathetic care of her mother, she will thus be deprived of the necessities of life due her by her husband, or be forced to accept them from some one not bound by law to contribute. This case was tried in the justice court, and the justice found for the plaintiff. It was tried anew in the circuit court, and the judge of that court, acting without a jury, found for the plaintiff; and, on the same state of facts, this court affirms his judgment.

Closing of Moving Picture Shows for Influenza

(Alden v. State (Ariz.), 179 Pac. R. 646)

The Supreme Court of Arizona affirms an order that denied the application and dismissed the petition of Alden for a writ of habeas corpus, sought on the grounds that the local board of health was without constitutional authority to enact valid rules and regulations which would compel him to close his place of business. The court says that the petitioner was arrested on a warrant issued by a justice of the peace on a complaint charging the petitioner with the offense of wilfully, maliciously and unlawfully conducting and carrying on a moving picture show at Globe, in violation of the published rules and regulations of the local board of health, then in force to prevent the spread of Spanish influenza, a dangerous, contagious or infectious disease then raging in epidemic form in the city of Globe and Gila County. The particular rule that the petitioner was charged with having violated was as follows:

> Rule 7. That it shall be unlawful for any person, persons, association, company or corporation to open, run, conduct, carry on, give or operate any pool room, theater, motion picture show, dance, or other amusement or entertainment in the city of Globe or vicinity.

Rule 17 provided:

> That these rules and regulations shall be in full force and effect immediately upon their being published and posted in accordance with law, and shall remain in full force and effect during the continuance of the present epidemic of Spanish influenza in the city of Globe and vicinity, and until the further order of the city health board.

Paragraph 4403, Revised Statutes of Arizona of 1913, declares that a violation of the rules, regulations and measures of the local health board, that have been published or of which the party violating has actual knowledge, is a misdemeanor and punishable as therein prescribed.

The questions of the power of the local health board to promulgate the particular rules and regulations here involved were considered by this court in *Globe School District No. 1, etc., v. Board of Health, etc.*, 179 Pac. R. 55, and reported in the Medicolegal Department of THE JOURNAL, June 21, 1919, under the heading: "Board of Health Closing Schools for Influenza." The supreme court concluded in that case that the rules and regulations adopted were within the power of the local board and were enforceable during the period of the existence of the epidemic, as a reasonable measure to prevent the spread of the disease. The court will not again enter into a discussion of the questions there discussed and decided.

It appeared in the present case that, at the time the petitioner was alleged to have opened his moving picture show, the Spanish influenza was raging in epidemic form; the facts in this respect appeared in the Globe School District No. 1 case, and may not be repeated. In the circumstances admittedly existing, the petitioner was subject to prosecution and therefore arrest, if, as a fact, he wilfully and knowingly violated the health rules by opening his said moving picture show and place of entertainment at that particular period of time. Consequently his arrest was lawful, and the judgment of the lower court is affirmed.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Lar., Cleveland, O., Oct. 16-18.
American Assn. Medical Milk Commissioners, New Orleans, Oct. 27-30.
American Assn. of Railway Surgeons, Chicago, Oct. 15-17.
American Public Health Assn., New Orleans, Oct. 27-30.
Assn. of Military Surgeons of the U. S., St. Louis, Oct. 13-15.
Colorado State Medical Society, Denver, Oct. 7-9.
Delaware State Medical Society, Dover, Oct. 13-14.
Medical Assn. of the Southwest, Oklahoma City, Oct. 6-8.
Minnesota State Medical Assn., Minneapolis, Oct. 2-3.
Mississippi Valley Medical Assn., Louisville, Ky., Oct. 21-23.
New Mexico Medical Society, Albuquerque, Oct. 3-4.
Southern Medical Association, Asheville, N. C., Nov. 10.
Vermont State Medical Society, Burlington, Oct. 9-10.
Wisconsin State Medical Society, Milwaukee, Oct. 1-3.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

July, 1919, **76**, No. 1

An Administrative Ideal in Public Welfare Work. O. Copp, Philadelphia.—p. 1.
Developments In Illinois. H. D. Singer, Urbana, Ill.—p. 15.
Functions of Psychopathic Hospital. J. V. May, Boston, Mass.—p. 21.
*Neuropsychiatry in Army Camps. G. E. McPherson, Medfield, Mass.—p. 35.
Experiences in the Immediate Treatment of War Neuroses. E. A. Strecker, U. S. Army.—p. 45.
Psychopathic Reactions to Combat Experiences in the American Army. J. H. W. Rhein, Philadelphia.—p. 71.

Neuropsychiatry in Army Camps.—During the months from May to September, 1918, inclusive, 54,000 recruits were examined at Camp Upton, N. Y. Of this number 1,050, or 2 per cent., were rejected for nervous and mental disorders. At Camp Gordon in four months, July to October, inclusive, 58,850 men gave a rejection of 1,225, or 2.8 per cent., for similar diseases and conditions. At Camp Upton drug addicts constituted 17 per cent. of the rejections for mental disease, while at Camp Gordon they made up 3.27 per cent. of such rejections. A survey of 100 drug addicts gave them a mental age rating of twelve years. Large numbers of epileptics entered camps, later to be discharged when their disabilities became apparent. Probably about 3.5 per cent. of 1,050 rejections were because of this disease. Thirty per cent. of rejections for nervous and mental disabilities were for mental deficiency, about 0.6 per cent. of all cases examined. Manic-depressive psychoses were present in very small numbers. The alcoholic psychoses were not numerous. Neurosyphilis contributed many cases for rejection, taken in the aggregate. In one draft of 800, these cases amounted to 0.7 per cent. of men examined. Emotional instability, inadequate personality, and sexual psychopathics were classified.

Archives of Neurology and Psychiatry, Chicago

Sept. 1, 1919, **2**, No. 3

*Peripheral Nerve Injuries Concomitant to Gunshot Wounds. I. J. Spear and W. W. Babcock, U. S. Army.—p. 253.
*Bulbar Paralysis or Amyotrophic Lateral Sclerosis? G. B. Hassin, Chicago.—p. 261.
Lethargic Encephalitis. J. B. Neal, New York.—p. 271.
*Psychoses Associated with Influenza. II. Specific Data. An Expository Analysis. K. A. Menninger, Topeka, Kan.—p. 291.
Sensory Changes in Peripheral Nerve Injuries. L. E. Grimberg, New York.—p. 338.

Peripheral Nerve Injuries Result of Gunshot Wounds.—On the basis of neurologic examinations, supported by subsequent operative findings, Spear and Babcock are of the opinion that from 60 to 75 per cent. of the patients with nerve injuries seen by them at Base Hospital No. 6 would not recover lost function without operative interference. The operative cases have not been under observation a sufficient length of time to arrive at a more than tentative conclusion as to ultimate outcome. The neurolysis and hersage cases have shown a considerable number of improvements, but measureable, objective improvement in the suture cases has been very limited.

Bulbar Paralysis.—A case is cited by Hassin which he believes demonstrates the identity of amyotrophic lateral sclerosis and chronic bulbar paralysis.

Psychoses of Influenza.—Menninger aims to illustrate the forms of psychoses associated with influenza by the presentation of representative cases. Influenza apparently acts on the brain in three ways: to create psychoses, to precipitate psychoses in predisposed subjects, and to augment or alter their form where already existent.

Boston Medical and Surgical Journal

Sept. 11, 1919, **81**, No. 11

State Clinics for Treatment of Venereal Diseases. E. R. Kelley, Boston.—p. 309.
Duty of Hospital Trustee and Relation to Staff. C. H. W. Foster, Boston.—p. 313.
Reconstruction Hospitals, Military and Civil. F. J. Cotton, Boston.—p. 322.
Case Records and Histories in Smaller Hospitals. H. P. Stevens, Cambridge.—p. 324.
Venereal Disease and the Public Health. G. G. Smith, Boston.—p. 329.
Gaseous Exchange with Unpracticed Subjects and Two Respiratory Apparatus Employing Three Breathing Appliances. M. F. Handry, T. M. Carpenter and L. E. Emmes, Boston.—p. 334. To be Cont'd.

California State Journal of Medicine, San Francisco

September, 1919, **17**, No. 9

Technic for Removal of Dead Teeth. J. Novitzky, San Francisco.—p. 314.
Specialty of Obstetrics; Its Present Status; Its Possibilities and Its Importance. H. P. Newman, San Diego, Calif.—p. 318.
Case of Pregnancy After Uterine Suspension. L. A. Emge, San Francisco.—p. 320.
Infections of Oral Cavity and Their Relations To Systemic Diseases. H. C. Bagby, Santa Barbara, Calif.—p. 323.
*Epidemic of Filaria Onchocerca. W. T. Fee, Guatemala.—p. 327.
Increased Spinal Fluid Pressure as an Indicator of Meningeal Disease. H. G. Mehrtens, San Francisco.—p. 328.
*Rapid Administration of Digitalis in Cardiac Decompensation. W. E. Kay, San Francisco.—p. 329.
Nephrolithiasis: Report of Case. W. B. Dakin, Los Angeles.—p. 331.
Schematic Method for Estimating Health Status of Runabout Child. C. E. Cater, Los Angeles.—p. 332.
Economic Aspects of State Hospital Discharges and Paroles. M. J. Rowe, Talmage, Calif.—p. 337.
*Camphor as a Stimulant and Pneumococcicide in Pneumonia. F. F. Gundrum, Sacramento.—p. 339.
Focal Infections and Nerve Reflexes as Related to the Eye. C. E. Ide, San Diego.—p. 341.
Will the War Influence the Practice of Medicine, as a Business? J. C. King, Banning, Calif.—p. 346.

Epidemic of Filaria Onchocerca.—There has been discovered in the Republic of Guatemala, by Dr. Rodolfo Robles, a new disease of parasitic origin, hitherto unknown in the American continent, commonly called erysipelas of the coast; produced by infection by a parasite—filaria onchocerca. The clinical history of this affection is described in detail by Fee.

Rapid Administration of Digitalis in Cardiac Decompensation.—In the wards of the medical clinic at the Stanford medical school, in selected cases, from 20 to 28 c.c. of a standardized tincture of digitalis are given within from twenty-four to thirty-six hours in treating this affection. Of this amount from 12 to 16 c.c. are administered on the afternoon of admission, and 4 c.c. after each of the three meals on the following day. The administration is then stopped and is not resumed until clinical or electrocardiographic observation indicate a decline in the effect of the drug. This usually occurs after from three to five days. The usual dose of from 1 to 2 c.c., three times a day, is then given. In favorable cases a striking improvement may be obtained within twenty-four hours, by the rapid oral administration of digitalis in large doses. This improvement is shown by a slowing of the pulse rate, by a reduction of difference between apex and radial rates in auricular fibrillation, by the removal of edema (a sudden fall in body weight) and by the relief of symptoms. Serious toxic effects were not observed.

Camphor in Pneumonia.—In 100 cases of lobar pneumonia Gundrum injected 15 c.c. of a 20 per cent. solution of camphor in olive oil, twice daily, for the purpose of determining its value. He found that it had no demonstrable effect on the circulation or on the course of the disease. The mortality from lobar pneumonia was 21 per cent.; bronchopneumonia, 41 per cent.; untreated pneumonia, 58 per cent.

Canadian Journal of Mental Hygiene, Toronto

July, 1919, **1**, No. 2

*State Programs for Care of Mentally Defective. W. E. Fernald, Mass.—p. 103.
Mental Hygiene in Relation to Social Hygiene. A. H. Desloges, Quebec.—p. 111.
Physician's Part in Preventing Mental Disorder. W. H. Hattie, Halifax, N. S.—p. 118.
Problem of Mentally Defective in Province of Quebec. G. S. Mundie.—p. 123.
Immigration, Past and Future. W. G. Smith, Toronto.—p. 130.
Montreal Local Council of Women and Mental Hygiene. C. M. Derick, Montreal.—p. 141.
The Right to Marry. What Can a Democratic Civilization do About Heredity and Child Welfare? A. Meyer, Baltimore.—p. 145.

Community Responsibilities in Treatment of Mental Disorders. W. L. Russell, New York.—p. 155.
*Supervision of Feebleminded in the Community. J. Taft, New York.—p. 164.
First Annual Meeting of the Canadian National Committee for Mental Hygiene.—p. 172.
Special Auxiliary Classes. W. E. Groves, Toronto.—p. 182.
Mental Deficiency in Relation to Venereal Disease. A. F. Tredgold.—p. 188.

State Programs for Mentally Defective.—The program which Fernald believes to be a feasible one includes the mental examination of backward schoolchildren, the mental clinic, the traveling clinic, the special class, directed training of individual defectives in country schools, instruction of parents of defective children, aftercare of special class pupils, special training of teachers in normal schools, census and registration of the feebleminded, extra-institutional supervision of all uncared for defectives in the community, selection of the defectives who most need segregation for institutional care, for such care, increased institutional facilities, parole for suitable institutionally trained defectives, permanent segregation for those who need segregation, mental examinations of persons accused of crime and of all inmates of penal institutions, and long continued segregation of defective delinquents in special institutions.

Supervision of Feebleminded.—Taft urges that a system of community supervision of the feebleminded in connection with the school system is absolutely necessary for a term of years: (1) in order to deal with the problem of control and prevention of feeblemindedness while segregation and sterilization are as yet inadequate; (2) in order to get facts regarding the feebleminded who can and those who cannot be adapted to life outside an institution; (3) in order to determine whether there is anything better than the colony plan for utilizing the labor of the feebleminded; (4) in order to educate the community to an understanding of the problem; (5) in order to justify the existence of special or ungraded classes and render them really useful; (6) in order to provide an opportunity for the study of the individual cases not *a priori* delinquent or belonging to the group obviously requiring segregation.

Illinois Medical Journal, Oak Park

September, 1919, 36, No. 3

Some Phases of War Surgery. N. M. Percy, Chicago.—p. 113.
Illinois School for the Blind. A. L. Adams, Jacksonville.—p. 118.
Infections of Gall Ducts and Their Treatment. P. F. James, Peoria.—p. 123.
Epidemic Encephalitis. S. S. Winner, Chicago.—p. 126.
Local Health Officer and His Problems. E. W. Weis, La Salle.—p. 131.
Habitat and Distribution of Dangerous Streptococci in Body. D. J. Davis, Chicago.—p. 134.

Journal of Immunology, Baltimore

July, 1919, 4, No. 4

*Bactericidal Action of Whole Blood of Rabbits Following Inoculations of Pneumococcus Bacterins. G. D. Heist and S. Solis-Cohen, Philadelphia.—p. 147.
*Rôle of Bacillus Influenzae in Clinical Influenza. F. M. Huntoon and S. Hannum, Glenolden, Pa.—p. 167.
*Bacteriology and Selective Action of B. Influenzae (Pfeiffer). C. Roos, Glenolden, Pa.—p. 189.
Immunologic Disparities of Spore and Vegetative Stages of B. Subtilis. R. R. Mellon and L. M. Anderson, Rochester, N. Y.—p. 203.
*Studies in Protein Intoxication. III. Visceral Lesions in Rabbits with Chronic Protein Intoxication. T. H. Boughton, Chicago.—p. 213.
Mechanism of Anaphylaxis Reaction in Rabbit. A. F. Coca, Ithaca, N. Y.—p. 219.
*Experiments with B. Influenzae; Its Toxin and Antitoxin. A Preliminary Report. N. S. Ferry and E. M. Houghton, Detroit.—p. 233.

Bactericidal Action of Blood of Rabbits.—The most general conclusion, and the most important one, drawn by Heist and Solis-Cohen from their work on the bactericidal activity of whole blood in vitro is that such blood, before it coagulates, possesses bactericidal properties which can be investigated and measured with considerable accuracy, properties which do not become apparent when blood serum alone is examined. The production, by suitable inoculations, of specific bactericidal activity in the blood of rabbits, for pneumococci of one type, is accompanied by the production of slight bactericidal activity for other types. A bacterin prepared from pneumococci washed from the peritoneal cavity of a rabbit dying of pneucococcal infection is more powerful as an immunizing agent for rabbits than one prepared from pneumococci grown on artificial culture mediums.

Rôle of Bacillus Influenzae in Clinical Influenza.—The experimental evidence obtained by Huntoon and Hannum showed that *B. influenzae* is capable of producing a toxic substance; that this substance when introduced into the circulation, produces congestion of the respiratory tract with hemorrhages into the alveoli. Certain conditions of symbiotic growth intensify the liberation of the toxin. As an effect of the action of the poison the lungs show a predisposition to invasion by various organisms, with the production of secondary lesions. Live bacilli introduced at a remote point probably affect the lungs through the action of a liberated toxin. There is nothing in the serologic evidence to preclude the consideration of this organism as an important factor in the causation of clinical influenza.

Bacteriology and Selective Action of B. Influenzae.—Roos says that *B. Influenzae* can be found in every case of true clinical influenza. To isolate this organism, which is most abundant in the earlier stages of the disease, it is necessary to exercise care on obtaining a suitable specimen, and since growth requirements of this organism are quite rigid, special selective culture media, such as those suggested by Avery and also by Fleming, carefully prepared and adjusted to reaction are essential for successful work. The various strains of *B. influenzae* apparently do not differ in kind. The toxic substances of *B. influenzae* show a marked action on the bronchorespiratory tract, thereby predisposing these organs to extensive invasion by the organism itself or to secondary infections. No marked increase in virulence of *B. influenzae* has been obtained by passages through laboratory animals. No bacteremia is produced by *B. influenzae* in laboratory animals by a dose approximating a minimum lethal dose regardless of the mode of injection chosen. The pathologic lesions in the rabbit, gross and microscopic, in many respects resemble those of influenza in human beings as observed during the past pandemic. The injection of *B. influenzae* into the rabbit intravenously results in a rapid and marked decrease in the polymorphonuclear cells.

Studies in Protein Intoxication.—The animals used by Boughton in his experimental work were sensitized by three doses of egg white: one subcutaneous, one intraperitoneal and one intravenous, at intervals of from one to three days. The animals were given the first toxic injection about three weeks after the last sensitizing injection. The later doses were given at varying intervals, and the size of the dose was gradually increased with the purpose of giving each animal as many anaphylactic shocks as possible, without killing the animal, on the one hand, and, on the other hand, without producing the refractory stage. Repeated injections produced pathologic lesions of the kidney, heart, liver, spleen and lung. These lesions consist of degeneration and necrosis of the parenchymatous cells, round cell infiltration, fibrosis and edema and thickening of the walls of the smaller arteries. The parenchymatous lesions were present in practically all the kidneys, but only a few hearts and livers. The infiltration was present in nearly all the kidneys, hearts and livers, and was most prominent in the kidneys and least prominent in the hearts. The vascular lesions were most frequent in the spleen, lung and heart, but were not severe in any case.

B. Influenzae: Its Toxin and Antitoxin.—Ferry and Houghton point out that irrespective of the etiologic relationship of the Pfeiffer bacillus to influenza it is an interesting fact to know that a soluble toxin can be produced which will stimulate the formation of an antitoxin. It is, also, of great scientific importance to know that this antitoxin cannot only neutralize the toxin in vivo as well as in vitro, but it can also protect against bacterial infection of the guinea-pig with *B. influenzae*. Two outstanding facts are emphasized; namely, the extreme congestion following an injection of guinea-pigs with *B. influenzae*, and the profound prostration in rabbits, due to a toxemia, following the injection of the toxin, which very closely simulates the early stages of influenza in the human subject.

Journal of Industrial Hygiene, New York

September, 1919, 1, No. 5

Toxemic Anemia from Arseniuretted Hydrogen Gas in Submarines. S. F. Dudley, Portsmouth, England.—p. 215.
Practical Study in Industrial Fatigue. H. C. Link.—p. 233.
Study of Fifty Workers in Trinitrotoluene. T. J. Putnam and W. Herman.—p. 238.
Syphilis, An Inestimable Factor in Industrial Inefficiency. E. A. Oliver, U. S. Army.—p. 246.
Industrial Medicine and Surgery—A Résumé of Its Development, Scope and Benefits. Part II. H. E. Mock, Chicago.—p. 251.
Protective Garments in the War Gas Industry. H. C. Bradley, U. S. Army.—p. 255.

Journal of Infectious Diseases, Chicago

September, 1919, 25, No. 3

*Fermentation Reactions of Certain Streptococci. XLII. Studies in Bacterial Metabolism. A. I. Kendall, A. A. Day, A. W. Walker and M. Ryan, Chicago.—p. 189.
*Is Hemoglobin Antigenic? C. L. A. Schmidt and C. B. Bennett, Berkeley, Calif.—p. 207.
*Mouse Pathogenic Pneumococci and Streptococci in Sputum in Pulmonary Tuberculosis. H. J. Corper and J. J. Enright, New Haven, Conn.—p. 213.
*Diphtheria Bacilli from Postoperative Empyema Wounds. J. S. Simmons and G. H. Bigelow, Ft. Sam Houston, Texas.—p. 219.
Influence of Antigen Dilution on Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 224.
Nitrogen Metabolism of Bacteria. A. G. Benton, Minneapolis.—p. 231.
*Effect of Thorium X on Active Anaphylaxis in Guinea-Pig. H. J. Corper, Chicago.—p. 248.
Antibodies in Chick. H. W. Sherman, Chicago.—p. 256.
Hemolytic Streptococci in Throat of Dog. H. W. Sherman, Chicago.—p. 259.
*Rapid Hydrogen Electrode Method for Determination of Hydrogen Ion Concentration in Bacterial Cultures or in Other Turbid or Colored Solutions. H. M. Jones, Chicago.—p. 264.
Frozen Complement in Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 269.

Fermentation Reactions of Certain Streptococci.—It is claimed by Kendall et al. that the classification of bacteria, including the streptococci, therefore, on the basis of fermentation reactions makes it possible to separate them into convenient and distinct groups which have divisional value. There is no clearly discernible relationship, however, between cultural grouping based on carbohydrolysis and pathogenesis.

Is Hemoglobin Antigenic?—Hemoglobin was prepared by Schmidt and Bennett by three methods, one by crystallization from ammonium sulphate as described by Schulz, and the other two by precipitation as oxyhemoglobin (with and without addition of alcohol) at low temperatures and resolution by reduction. Each of the three preparations was recrystallized a number of times. Rabbits were immunized with each of the above preparations and both fixation and precipitin tests carried out. These were negative. In the serum of these rabbits no sensitizer was found, which, in the presence of alexin, cause a hemolysis of dog cells. Agglutinins were likewise not produced. Hemoglobin failed to sensitize guinea-pigs for the anaphylaxis reaction. The authors believe that the conclusion that hemoglobin is nonantigenic seems warranted. Doses of hemoglobin very much larger than the amount of globin which will cause toxic symptoms were injected both intravenously and intraperitoneally into guinea-pigs and toxic symptoms were not shown. Combination of toxic globin with hematin as occurs in hemoglobin renders it nontoxic, but does not, as in the instance when globin is combined with casein, give, when rabbits are immunized, antibodies for itself.

Pathogenic Cocci in Tuberculous Sputum.—Corper and Enright studied the sputum in fifty-seven cases of pulmonary tuberculosis by injecting it into mice (intraperitoneally) and culturing and typing directly from the peritoneal fluid, and then comparing these results with those previously obtained by cultural methods. The organisms from the sputum of open cases of pulmonary tuberculosis obtained by intraperitoneal injection of mice were mainly pneumococci of types III and IV, and a few of type II, the types which are considered saprophytic by Pritchett and Stillman in contradistinction to the pneumococcus I and certain strains of type II. A few hemolytic streptococci and *Streptococcus viridans* were also found in the sputum. As a whole, the organisms found in the sputum from open cases of pulmonary tuberculosis by mouse inoculation differed little from those found in the saliva of the same cases and in the sputum and saliva of normal individuals. These results are corroborative of previous results by direct culture methods from which it was concluded that the organisms in the sputum in pulmonary tuberculosis ordinarily play an insignificant part in the pathogenesis of this disease. As far as the presence of these organisms in the lung are concerned, the authors claim that they are to be considered more as would their presence in any nontuberculous disease, and as indicating a condition of lowered local resistance which makes possible a saprophytic residence of such bacteria. Just why the so-called parastic types are not found remains to be discovered, as does also the infrequent occurrence of pneumococcus pneumonia in pulmonary tuberculosis.

Diphtheria Bacilli in Empyema Wounds.—An organism corresponding morphologically to the diphtheria bacillus was found by Simmons and Bigelow in a culture from a healing postoperative empyema wound. Cases showing this organism increased in number until a short time later sixty of the empyema wounds were infected. Of the strains isolated, 17.8 per cent. were virulent for guinea-pigs, and all of these strains failed to produce acid when grown in saccharose broth cultures for eight days. The degree of virulence among saccharose negative strains was variable. The morphologic characteristics presented by both virulent and avirulent strains were the same. All cultures contained a mixture of Wesbrook's type A, C and D, with the subtypes. There was no evidence of the development of specific agglutinins, precipitins or complement fixing substances for diphtheria bacilli (virulent or avirulent) in the serum of the infected individual. Apparently there was no invasion of the blood stream by the diphtheria bacilli in the wounds. All methods of treatment tried proved unsatisfactory, due probably to the growth of bacilli deep in the wound granulations. As a rule, the carrier state continued until complete healing of the wounds had taken place.

Thorium X and Anaphylaxis.—The object of the experiments made by Corper was to obtain a method applicable to the study of one of the problems in tuberculosis—that of allergy. He found that thorium X, given in about one and one half the lethal amount seven days before or coincident with the primary injection of egg white, normal horse serum or milk proteins, or seven days before or with the second injection of these proteins, had no appreciable effect on the severity of the anaphylactic symptoms in guinea-pigs or reinjection of protein sixteen to eighteen days after the primary injection. Likewise, the repeated administration of smaller doses of thorium X, sufficient to maintain a leukopenia as low as 2,000 leukocytes per cubic millimeter throughout the entire interval of sixteen to eighteen days between the first and second injections, or very small repeated injections not appreciably affecting the number of peripheral leukocytes, had just as little effect on the severity of the anaphylactic symptoms. There was no direct relation noted between the anaphylactic symptoms and the leukocyte counts as affected by thorium X. In the larger doses the effect observed seemed to be due to the combined action of two toxic substances: the thorium X, a chronic poison, and the anaphylatoxin, an acute poison.

Rapid Determination of Hydrogen Ion Concentrations.—A new apparatus for determining the dilution of hydrogen ion in bacterial cultures and other fluids is described by Jones. As compared with the colorimetric method, the apparatus here described has wider application, is more accurate, less cumbersome and only slightly less rapid. The hydrogen electrode vessel described was designed with two objects, chiefly, in mind: (1) to provide a vessel accurate at least to 0.01 p_H and (2) to provide a vessel giving rapid saturation with hydrogen gas, and yet one which is easily constructed. A rapid and labor saving technic combining the indicator, and the gas-chain methods is described, which obviates the difficult task of preparing standard solution for the former methods, and of making needless repetitions by the latter.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

August, 1919, 13, No. 5

*Effect of Morphin on Alkali Reserve of Blood of Dogs Gassed with Fatal Concentrations of Chlorin. A. M. Hjort and F. A. Taylor, New Haven, Conn.—p. 407.
*Action of Epinephrin on Spleen. F. A. Hartman and R. S. Lang, Toronto.—p. 417.
*Comparative Activity of Local Anesthetics. VI. Difficultly Soluble Anesthetics on Mucous Membranes. T. Sollmann, Cleveland.—p. 429.
*Pharmacology of Local Anesthetics. C. Eggleston, and R. A. Hatcher, New York.—p. 433.
Application of Kjeldahl Method to Compounds of Brucine, Brucine Salt of a New Nucleotide. W. Jones, Baltimore.—p. 489.
*Iodin: Effect on Fibrous Nodules. T. Sollmann, Cleveland.—p. 495.

Effect of Morphin on Blood of Gassed Dogs.—Hjort and Taylor found that morphin sulphate administered subcutaneously to normal dogs in doses of 10 mg. per kilogram causes an increase in the alkali reserve which is maintained at a high level for many hours. Concentrations of approximately 0.08 per cent. by volume of chlorin gas produce within from two to seven hours a rapidly advancing condition of acidosis. This may be preceded by a temporary increase in the alkali reserve. In dogs gassed with this concentration of chlorin, morphin, in the 10 mg. per kilogram doses, may temporarily prolong the maintenance of a high alkali reserve level; these doses, however, exert, if anything an unfavorable influence on the ultimate outcome. An external temperature of 33 C. appears to affect unfavorably the course of the alkali reserve in gassed dogs that had been treated with morphin previously.

Action of Epinephrin on Spleen.—According to Hartman and Lang dilatation of the spleen is caused by the action of epinephrin on the twelfth and thirteenth dorsal root ganglia, the semilunar ganglion or on some terminal structure in the spleen itself. Constriction can result from the response of a mechanism in the dorsal root ganglia or from a structure in the spleen.

Comparative Activity of Local Anesthetics.—The efficiency of the difficulty soluble local anesthetics for mucous membranes, according to Sollmann may be demonstrated on the cornea of rabbits or on the gums of human subjects. An approximate estimate of their relative efficiency may be obtained by comparing dilutions made with talcum powder. On the cornea, anesthesin, cycloform, orthoform-new and propraesin appear to be practically equivalent. They are certainly effective in concentrations of 10 per cent.; uncertain at 5 per cent. and practically ineffective at 2.5 per cent. The anesthesia persists for from ten to fifteen minutes with 10 per cent.; from fifteen to thirty minutes with 25 to 100 per cent. On the gums a greater variation was noted. The minimum concentrations giving almost complete anesthesia were as follows: Cycloform, less than 2.5 per cent.; anesthesin, from 2.5 to 5.0 per cent.; propaesin, from 5.0 to 10.0 per cent.; orthoform-new, from 10.0 to 25.0 per cent.

Pharmacology of Local Anesthetics.—The more important literature of acute intoxication in man from the local anesthetics is reviewed by Eggleston and Hatcher and cases are cited to show the close similarity between the symptoms produced in man and in the lower animals, especially the cat. The phenomena of acute intoxication in the cat, following the intravenous injection of the local anesthetics, are described, and the similarity of the phenomena produced by different members of the group is emphasized. The maximum toxicity for each of the members of the series has been determined by rapid intravenous injection in the cat, and the relative toxicities of the several drugs are represented graphically. The several different local anesthetics are shown to be mutually and quantitatively synergistic, so far as their fatal actions are concerned. The capacity of the cat to withstand the intravenous injection of several times the fatal vein dose of any of the local anesthetics, except cocain and holocain, has been shown by repeated injections of large doses, or the continuous injection of relatively dilute solutions. The toxicity of the local anesthetics for the cat, after subcutaneous injection, has been shown to depend on the ratio between the rate of absorption and that of elimination, and the local anesthetics can be divided into two classes with reference to that ratio. Five, or more than five, times the minimal fatal vein dose of alypin, aopthesin, beta-eucain, nirvanin, procain, stovain and tropacocain can be injected subcutaneously in the cat without causing death, while four, or less than four, times the fatal vein doses of cocain and holocain similarly injected prove fatal. The simultaneous subcutaneous injection of epinephrin with the local anesthetics materially reduces the toxicity of the latter by delay in the rate of their absorption, but this reduction is much less marked in the cases of cocain and holocain than with the other members of the series, and is referable to their much slower "essential" elimination. The absorption of several of the local anesthetics from the mucous membranes of the nose and pharynx of the cat has been shown to be no more rapid than from the subcutaneous tissues, and the urethra, bladder and vagina resist the absorption of these drugs to a great extent. The elimination of the local anesthetics in the cat has been demonstrated to be due to their rapid destruction by the liver, and this takes place in the excised, perfused organ as well as in the liver of the intact animal. All of the local anesthetics have been shown to be synergistic with epinephrin on the blood pressure in a manner analogous to cocain. The employment of artificial respiration, combined with stimulation of the heart by the intravenous injection of epinephrin is capable of saving cats from death following the intravenous injection of as much as twice the average fatal dose of the local anesthetics. Stimulation of the heart by the previous injection of ouabain permits the cat to recover from intravenous injections of nearly twice the average fatal dose of the local anesthetics, when the temporary paralysis of the respiratory center is combated by the use of artificial respiration. The success of the last two measures depends on the rapid destruction of the local anesthetics by the liver.

Effect of Iodin on Fibrous Nodules.—Intradermal fibrous nodules, produced by intracutaneous injections, were treated by Sollmann with local applications of iodin to test its absorptive efficiency. Very definite effects were obtained by daily applications, continued at least eight days, and pushed to considerable irritation of the skin. Treatment over shorter periods was inefficient, even when the dosage and the irritation were greater.

Medical Record, New York

Sept. 6, 1919, 96, No. 10

Souvenirs of An Old New York Practitioner of Medicine. B. Robinson, New York.—p. 399.
Pityriasis Rosea. W. P. Cunningham, New York.—p. 403.
Acute Purulent Otitis Media and Acute Mastoiditis at the Base Hospital, Camp Stuart, Va. J. D. Kelly, New York.—p. 408.
*Whispered Voice Sound; An Aid to the Early Diagnosis of Pneumonic Consolidation. H. H. Lissner, Los Angeles, Calif.—p. 412.
A Needle Carrying A Continuous Suture. A. Kahn, New York.—p. 412.
Absence of Prostate. Report of Case. J. H. Dowd, Buffalo.—p. 413.
Trench Fever. R. D. Rudolf.—p. 414.

Whispered Voice Sound.—At the base hospital, Camp Pike, Ark., it was noticed that bronchophony was a constant accompaniment of every case and it was felt that this physical sign was merely an expression of transmission of sound through the bronchi to the chest wall, due to increased lung infiltration. These sounds coming to the ear in exaggerated form, led to the thought that the whispered voice sound would be as evident, and it was found that small areas of patchy consolidation which were not demonstrable by percussion and over which bronchial breathing was not determinable, were brought out and could be defined sharply by this method. Carrying this idea further, it was found that the entire lung surfaces could be examined systematically in a short space of time with the ordinary bell of a Bowle's stethoscope, by going from ring to ring as marked on the chest wall and by this method the areas of consolidation could be outlined sharply and nicely differentiated from the uninvolved area immediately adjoining it. The point or place of the whispered voice sound Lissner says is not new in physical diag-

nosis but its application to the diagnosis of early pneumonic consolidation is a new departure and gives to this particular sign an added value.

Sept. 13, 1919, 90, No. 11

*Pulmonary Suppuration. C. A. Hedblom, Rochester, Minn.—p. 441.
Spastic Paralysis in Children. J. Grossman, New York.—p. 453.
*Tuberculin Therapy in Children. R. C. Newton, Montclair, N. J. —p. 459.
Headache and Dyspituitarism in the Light of Therapeusis. J. A. Glassburg, New York.—p. 461.
Paroxysmal Nasal Hydrorrhea Based on Dyspituitarism. S. G. Strauss, New York.—p. 463.
Treatment of Purulent Pleural Effusions. T. Tuffier, Paris, France. —p. 464.

Pulmonary Suppuration.—Up to 1919, seventy patients have been operated on at the Mayo Clinic for pulmonary suppuration. The combined mortality from all causes, including bronchiectasis, was 33.3 per cent. Hedblom's study is concerned chiefly with fifty-four cases in which operation had been done since 1910. There are included also two cases that progressed to a spontaneous cure and twenty-four necropsy cases. In seventeen of the twenty-four necropsy cases abscess occurred as a postoperative complication; in sixteen the abscesses were multiple. In seven instances the patients were either moribund on admission or the condition was not recognized clinically. Hedblom is convinced that primary suppuration of the lung is rare. Suppuration occurs on a preceding inflammatory basis, or the infection is carried to the lung tissue through the bronchus, the blood stream, or by direct extension. A persistent productive cough is the most characteristic symptom. The sputum is usually purulent, and often foul. Other clinical features of suppuration are present in varying frequency and degree. Localized dullness to percussion and a circumscribed roentgen-ray shadow are the most constant physical findings. Pulmonary suppuration is probably frequently mistaken for phthisis. In 33 per cent. of the cases reported by Hedblom symptoms were suggestive of tuberculosis. The treatment of localized suppuration is early free drainage. Prolonged expectant treatment or inefficient drainage greatly increases postoperative morbidity and mortality. Local and regional anesthesia is safe and in most cases very satisfactory. The abscess should be drained only through the adherent pleura or after the pleural cavity has been walled off by suture of the lung to the parietal pleura. A two-stage operation allowing a few days for adhesions to form around the suture line Hedblom says is probably the best safeguard against empyema, which is a frequent and the most dangerous complication.

Tuberculin Therapy in Children.—Newton reports seven cases, nearly all of which showed very perceptible improvement from comparatively small, or very small doses of tuberculin. Of four cases of peritoneal tuberculosis, three patients were brought under treatment within a few weeks of the appearance of the ascites and the improvement was prompt and gratifying; while one patient gave much more trouble and took much longer to recover, and this in spite of the fact that he had been removed from an unfavorable environment in the slums of a great city to a markedly salubrious one in the country. Newton also claims to have achieved excellent results in the tuberculin treatment of three cases of pulmonary tuberculosis that had come under treatment within a few months of the beginning of active pulmonary lesions, while cases of longer standing, although improving for a time, under tuberculin, have failed to show a permanent arrest. Newton emphasizes that, generally speaking, tuberculin must be used early if it is to be of permanent benefit.

Michigan State Medical Society Journal, Grand Rapids

September, 1919, 18, No. 8

Administration of Concentrated Arsphenamin and Its Relation to Nitroid Crisis. R. S. Morrish, Flint.—p. 467.
Diseases and Treatment of Prostate. E. S. Judd, Rochester, Minn.—p. 469.
Flight Surgeon's Relation to Flyer. G. E. Frothingham, Detroit. —p. 473.
Intraocular War Injuries. R. D. Sleight and W. Haughey, Battle Creek. —p. 477.

Minnesota Medicine, St. Paul

September, 1919, 2, No. 9

Surgical Treatment of Jacksonian Epilepsy. R. Earl, St. Paul. —p. 325.
*Blood Picture in Exophthalmic Goiter. W. A. Plummer, Rochester. —p. 330.
Principles of Foreign Protein Therapy. W. P. Larson, Minneapolis. —p. 332.
Ectopic Pregnancy. C. B. Lewis, St. Cloud.—p. 334.
*Abscess of Lung: Treatment. C. A. Hedblom, Rochester.—p. 337.
*Therapeutic Effects of Overfeeding in Pernicious Anemia. T. A. Peppard, Minneapolis.—p. 344.
Fractures of Head of Radius. L. E. Daugherty, St. Paul.—p. 350.
Ileocecal Catheter Drainage of Intestine in Diffuse Septic Peritonitis. H. C. Cooney, Princeton.—p. 352.

Blood Picture in Exophthalmic Goiter.—The claim made by some observers that anemia of the chlorotic type is a characteristic of exophthalmic goiter is not borne out by Plummer's findings based on an examination of the blood of 578 patients. An anemia, when present, is neither the result of, nor necessarily coincident with, hyperthyroidism, but is due to secondary changes. The real status in regard to the number of leukocytes in patients with exophthalmic goiter is that there is a wider variation, probably dependent on the neutrophils, than among normal counts, and while there are more counts showing a decrease in leukocytes there is an equally large number showing a slight increase. Plummer has not been able to demonstrate that a leukopenia is more frequently present in the early stages of the disease. In the majority of the cases there is a relative and absolute mononucleosis; and when a leukopenia is present the decrease takes place at the expense of the neutrophils; but the converse is true to a lesser degree. The eosinophils show some variation, but the total averages give no increase. In the mortality statistics of the Mayo Clinic the relative lymphocyte count is a few points under the average for the entire series but it is not sufficient to be of value in prognosis. The differential count is of limited value in diagnosis. Except for a polymorphonuclear leukocytosis immediately following operation, and during tonsillitis and other acute infections, Plummer has been unable to determine any factor which influences the characteristic blood picture.

Abscess of Lung: Treatment.—In sixteen cases of lung abscess treated in the Mayo Clinic the apparent etiologic factors were as follows: pneumonia (postoperative), four cases; teeth extraction, three cases; tonsillectomy (operation elsewhere under general anesthesia), two cases; gastroenterostomy for ulcer, grip and trauma (followed by pneumonia), one case each; questionable, four cases. All the patients were operated on regardless of the fact that several were desperately ill and, therefore, were very poor surgical risks. Three patients died; a mortality of 18.7 per cent. All of the remaining thirteen are improved. In three of these the operation is too recent to classify as to the permanent result. Two have bronchial fistulas that will probably require plastic operation. Seven are cured in the sense that there is no sinus and they have no symptoms referable to the pulmonary lesion. The treatment consisted of drainage.

Therapeutic Effects of Overfeeding in Pernicious Anemia.—Three cases of pernicious anemia have been studied by Peppard with reference to the effect of forced feeding. In two cases, possibly in all of them, a positive nitrogen balance was secured without difficulty. During the gain in weight symptomatic improvement took place and there was a distinct betterment in the blood picture. A diet allowing from sixty to sixty-five calories per kilogram (approximately double the minimum requirement) is recommended, this to be given in proportions of portein, 16 per cent.; fat, 42 per cent., and carbohydrates, 42 per cent.

Modern Hospital, Chicago

September, 1919, 13, No. 3

Cincinnati General Hospital: Its History and Present Aspect. C. R. Holmes, Cincinnati.—p. 161.
Maintaining Balance in Hospital Administration. B. B. Lyons, Wilmington, Delaware.—p. 166.
Morale Work in U. S. Army. J. F. Bresnahan, U. S. Army.—p. 168.
Metabolism Clinic of Royal Victoria Hospital, Montreal. J. J. Walker, Montreal.—p. 170.

Walter Reed Military Hospital New Swimming Pool. E. L. Heck, Takoma Park, D. C.—p. 173.
Rural Hospital from a Rural Point of View. F. E. Sampson, Creston, Ia.—p. 174.
New York Diagnostic Clinic and Its New Building. J. J. Weber, Chicago.—p. 178.
Training of Specialists to Administer Anesthetics. J. C. Oliver, Cincinnati.—p. 181.
Superintendent's Responsibility for Obtaining Postmortems. R. E. Castelaw, Kansas City, Mo.—p. 182.
How Can Teaching In Hospital Best Be Organized? G. Dock, St. Louis.—p. 184.
Organization of a Children's Dispensary on Basis of Appointments for Patients. E. A. Park, Baltimore.—p. 185.
Management of Contagious Disease Hospitals. D. L. Richardson, Providence, R. I.—p. 190.
Lessons from Reconstruction Hospitals. L. A. Pechstein, Boston, Mass.—p. 194.
Some of Newer Proprietary Foods. J. P. Street, New Haven.—p. 244.
Aluminum Cooking Utensils. L. Graves, Ithaca, N. Y.—p. 247.
Preparing Statistics in Venereal Disease Clinics. M. M. Davis, Jr., and B. C. Lowell, Boston.—p. 252.

New York Medical Journal

Sept. 13, 1919, **110**, No. 11

Relation of Immunizing Procedures to Latent Infections. B. M. Randolph, Washington, D. C.—p. 441.
Emotions and Their Mechanism in Warfare. T. A. Williams, Washington, D. C.—p. 447.
Cerebrospinal Syphilis with Special Relation to Optic Nerves. M. J. Schoenberg, New York.—p. 452.
Influenza and Its Sequels. T. F. Reilly, New York.—p. 454.
An Intestinal Tube. M. Einhorn, New York.—p. 456.
Description of a Fetal Monster. J. Guidote, Leyte, Philippine Islands.—p. 459.
What the War Has Taught Us; Compound Fractures. J. A. Miller, New York.—p. 460.

Public Health Journal, Toronto

September, 1919, **10**, No. 9

Public Health Officer and his Relation to Public Health in Toronto. S. E. L. Thompson.—p. 393.
Work of Red Cross Organization in Relation to Preventive Medicine of Future. A. Newsholme.—p. 402.
Some Opportunities for Health Service from a Volunteer's Point of View. H. R. Y. Reid.—p. 409.
Plan for More Effective Federal and State Health Administration. F. L. Hoffmann.—p. 419.
Preliminary Study in Pacteriology of Jellied Meat Products. J. A. Allen.—p. 429.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 16, 1919, **2**, No. 3059

Cortical Localization of Vision. G. Holmes.—p. 193.
Case of Symmetrical Gangrene (Raynaud's Disease). E. Goodall.—p. 199.
*Effects of a Scorbutic Diet on the Suprarenals. R. McCarrison.—p. 200.
*Sudden Detachment of Aortic Intima (So-Called Dissecting Aneurysm). C. Walker and L. Walker.—p. 200.
Liver Abscess. C. Gibson.—p. 202.

Effects of a Scorbutic Diet on Suprarenals.—A pronounced reduction in the amount of epinephrin in the suprarenal glands was found by McCarrison to result in guinea-pigs from a scorbutic dietary of crushed oats and autoclaved milk.

Sudden Detachment of Aortic Intima.—The Walkers cite the case of a man, 65 years of age, apparently in good health, who fell down suddenly and nearly died; he recovered somewhat, and complained of intense substernal pain and of pain and paresis of the left leg. About thirty-eight hours later he died suddenly. The postmortem examination disclosed the greater part of the aortic intima lying free in the lumen. The aorta was extensively atheromatous. The mechanism of the process, and of the so-called dissecting aneurysm, is discussed. It is maintained that in the absence of bulging of the outer coats, static considerations alone do not provide an adequate explanation, but that the motion of the blood is a significant factor.

Aug. 23, 1919, **2**, No. 3060

Applications of Experience Gained by the War to the Problems of Civil Medical Practice. W. H. White.—p. 227.
Disturbances of Visual Space Perception. G. Holmes.—p. 230.
*Criticism of Certain Recent Claims to Have Discovered and Cultivated the Filter Passing Virus of Trench Fever and of Influenza. J. A. Arkwright.—p. 233.
A Thomas Arm Splint with A Flexible Elbow. W. J. Foster.—p. 237.
Leucine: Its Occurrence and Significance in the Urine. R. W. Allen.—p. 238.

Viruses of Trench Fever and Influenza.—Arkwright has been unable to confirm any of the experimental results reported by other investigators on the bacteriology of trench fever and influenza. He has been unable to distinguish macroscopically or microscopically between tubes inoculated with trench fever or influenza virus and control tubes at any period between their first inoculation and three weeks later, or over a longer period. The culture tubes showing a considerable amount of deposit or turbidity of the serum broth have, when examined, always proved to be contaminated by bacteria, as shown by subculture and microscopic examination. Two tubes selected by Wilson from his own culture after macroscopic and microscopic examination as good examples of growth of (*a*) trench fever and (*b*) influenza virus proved to be grossly contaminated by large staphylococci and appeared to Arkwright to contain no other organisms. Of three films shown as typical of the trench fever virus from different cases of trench fever and showing organisms of similar morphology, two appeared to be undoubtedly films of a diphtheroid bacillus irregularly stained, the third film also contained diphtheroid bacilli and in addition large numbers of a small bacillus of different appearance. Other tubes regarded by Wilson after macroscopic and microscopic examination as examples of cultures of trench fever, which did not contain ordinary bacteria, showed in Arkwright's opinion only appearances which were also found in control tubes. The forms claimed by Bradford, Bashford and Wilson as the micro-organisms of trench fever and influenza appear to Arkwright to be of two kinds: (*a*) Bacteria of the size of a staphylococcus or a diphtheroid bacillus, but only partially stained (polar or central staining). (*b*) Smaller or larger granules of precipitated protein which stain much more feebly than (*a*) and are also found in control tubes. Some of Wilson's films appear to contain both and some only the latter forms. In Arkwright's opinion Wilson has been misled by the appearances in films of bacteria feebly stained with methylene blue, in which only partial, for example, polar, staining is seen, and in the case of cultures from which bacteria have been absent he has been deceived by the diplococcus like or dumbbell shaped forms often seen in protein precipitates, and has regarded these granules as organisms. That Bradford, Bashford and Wilson should have been so misled in their researches appears to be due to the following causes: 1. The conditions under which they worked in isolation from other bacteriologists, conditions which would scarcely have obtained in times of peace. 2. A tendency to place undue reliance on the efficacy of filters and glycerin for removing or killing bacteria. 3. A misconception as to the size of the bodies seen in their films. 4. Inadequate staining. 5. Insufficient use of subculture on to ordinary mediums as a test for bacterial contamination.

Aug. 30, 1919, **2**, No. 3061

Education of Graduates. A. MacPhail.—p. 261.
*Cases of Rapidly Fatal Spinal Caries. J. R. Collins.—p. 265.
*Comparative Value of Novarsenobillon by Intravenous and Intramuscular Methods. Treatment and Prevention of Syphilis. L. G. Leonard.—p. 266.
Disordered Action of Heart in Mesopotamian Forces. A. H. Gosse.—p. 269.
*Perithelioma Simulating Pancreatic Cyst. R. E. Smith.—p. 270.
Avoidance of Relapse in Gonorrhea by Electrolysis. C. Russ.—p. 270.

Cases of Rapidly Fatal Spinal Caries.—Each of the three men whose illness is reported on by Collins appeared robust and gave a good previous health report, with the exception that one patient gave a history of pains in his back. The first patient was of a quite exceptionally fine physique, and said he had always enjoyed excellent health. The illness of the first patient lasted six days, that of the second fifteen days, that of the third nine days. The onset in each case was swift and without warning. The first patient, to his surprise, found himself unable to walk to the medical hut; the other two patients found one day, when in hospital, that

they had become powerless in their legs. The first patient had six months' service, the second one year and five months, and the third two years and three months. There was no history of trauma in any of these cases. The patients died. A necropsy report is submitted in each case.

Relative Value of Intravenous and Intramuscular Injection of Arsphenamin.—On the basis of clinical results obtained in a large number of cases, Leonard favors the intramuscular method of administering arsphenamin, although good results were also obtained from the intravenous method. He emphasizes the importance of early treatment, and that quackery—advertised "remedies" and counter prescribing—should be dealt with more rigorously in order to prevent serious delay in commencing proper treatment.

Perithelioma Simulating Pancreatic Cyst.—In Smith's case the pseudocyst of the pancreas so closely simulated a true cyst of that organ that it was only at the necropsy and by tissue section that the true pathologic condition was determined. The growth had no definite capsule, except some feeble granulation tissue. The mass and its contents showed numerous blood spaces lined by large malignant cells radially arranged and spreading in solid masses from the blood spaces. There was much degeneration at the points distant from the spaces. The malignant cells were large with deeply staining cytoplasm; nuclei large, pale, and showing an active mitosis. The growth was a perithelioma or an encephaloid carcinoma with degeneration at the points remote from the blood spaces.

Edinburgh Medical Journal

August, 1919, **32**, No. 2

*Treatment of Acute Gonorrhea: With Special Reference to Vaccine Therapy and Value of Detoxicated Vaccines and Complement Deviation Test in Acute and Chronic Cases. D. Lees.—p. 83.
A Field Ambulance in Gallipoli, Egypt, Palestine, and France. J. Young.—p. 106.

Treatment of Acute Gonorrhea.—Lees reviews the various plans of treatment followed for this disease and expresses himself strongly in favor of detoxicated vaccines.

Lancet, London

Aug. 23, 1919, **2**, No. 5008

*Fracture of Femur. J. Driberg.—p. 311.
Perverted Functional Activity in Production of Jaw Deformities. D. M. Shaw.—p. 316.
*Antiscorbutic and Growth Promoting Value of Canned Vegetables. M. E. D. Campbell and H. Chick.—p. 320.
*Antiscorbutic Value of Some Indian Dried Fruits. H. Chick, E. M. Hume and R. F. Skelton.—p. 322.
*Comparison Between Antiscorbutic Properties of Fresh, Heated, and Dried Cow's Milk. R. E. Barnes and E. M. Hume.—p. 323.
*Immunized Skin Grafts. A. Yates.—p. 324.
Mucus Deposit of Urine. S. G. Billington.—p. 325.
Five Cases of Spontaneous Fracture Occurring in Serving Soldiers. C. Noon.—p. 326.
Effects of Exposure on Terminals of Hands and Feet. F. Jeeves.—p. 328.
Keratodermia Blennorrhagica. C. S. Dyke.—p. 328.
*Cryptopodia: An Undescribed Disease. E. C. Bousfield.—p. 329.

Aug. 30, 1919, **2**, No. 5009

Educational Number.

Fractures of Femur.—Driberg points out that by the use of any one of the methods described by him a perfect result can be obtained in the vast majority of fractured femurs, but, success depends, in large part, on the exercise of constant care and attention to detail. The adjustment of the slings, the maintenance of the extension, the movements of the knee joint, the correct suspension with slight eversion of the limb, the prevention of foot drop, massage, and the upkeep of general health and nutrition of the patient—each of these plays its allotted part in the attainment of perfection; and if any one is neglected the seeker after perfection is apt to be disappointed.

Antiscorbutic and Growth Promoting Value of Canned Vegetables.—Previous investigators have shown that canned vegetables suffer considerable deterioration in antiscorbutic value owing to the high temperature to which they are exposed in the process of preparation. Campbell and Chick did some experimental work to obtain an accurate estimate of what that loss might be. Cabbage and green (runner) bean pods were selected as suitable vegetables for the experiment. The experiments consisted essentially in estimating and comparing the minimal amounts of these vegetables, (*a*) when raw, and (*b*) after canning, which must be added daily to a basal scurvy producing diet in order to protect young guinea-pigs from scurvy over a period of three months. It was learned that in the process of canning vegetables the greater part of the original antiscurvy value of the raw vegetable is destroyed. In the case of runner bean pods the loss is estimated at about 90 per cent. of the original value; in the case of cabbage at about 70 per cent. of the original value. This loss is primarily due to the destruction of antiscurvy material occurring during the heating involved in the process of canning. A further loss may be expected to take place during the period of storage. This canned cabbage was examined two weeks after preparation and the canned beans three months afterward. In the case of green leaf vegetables which possess, in addition to the antiscurvy vitamin, the "fat-soluble" growth promoting accessory factor, the latter substance is also lacking in the canned material unless the liquor be also taken. Therefore, the value of canned vegetables as regards antiscurvy and growth promoting properties must be regarded as negligible.

Antiscorbutic Value of Some Indian Dried Fruits.—Chick and her associates state that dry tamarind, cocum and mango possess a definite but small antiscorbutic value. This value is greatly inferior to that of raw cabbages, swedes, germinated pulses, orange juice, lemon juice, but equal superior to that of carrots, beet roots, cooked potatoes, raw meat juice —reckoned weight for weight in the natural condition.

Antiscorbutic Properties of Fresh, Heated and Dried Cow's Milk.—The antiscorbutic value of cow's milk, fresh, heated and dried, was determined by Barnes and Hume by means of quantitative nutritional experiments with guinea-pigs and monkeys. Cow's milk, even when fresh, was found to be a foodstuff comparatively poor in antiscorbutic properties, and large daily rations, 100 to 150 c.c. daily for guinea-pigs and 125 to 175 c.c. daily for monkeys, were needed to protect these animals from scurvy, when on a diet otherwise devoid of antiscorbutic material. Dried milk was found ir to raw milk in this respect. Even with material of quite manufacture the authors were unable to protect gui from scurvy with any amounts that it was found possible to administer. In case of monkeys the minimum protective dose was found to be approximately from 20 to 300 c.c. daily; in other words, about half the original antiscorbutic value of the fresh milk had been destroyed in the process of drying. "Scalded" milk was found distinctly superior to dried milk. These facts form a strong argument for the desirability of adding an extra antiscorbutic to the diet of infants nourished on dried milk. The most suitable substances for this purpose are raw orange juice, raw swede juice, or juice of tomatoes, raw or canned. Grape juice and carrot juice are also useful but less valuable, as, being inferior in potency, correspondingly large doses are required. Potatoes, cooked and mashed, can be employed in cases where starchy foods are not considered unsuitable. Some evidence was obtained showing that winter milk is inferior to summer milk in antiscorbutic properties, corresponding to the differences in the cow's diet at these different seasons. In this connection the suggestion is made that the value of winter milk in this respect might be raised if swedes were employed for winter feedings in place of mangolds, where possible. No significant difference was detected in the growth promoting properties of raw and dried milk, respectively, and this was true with both guinea-pigs and monkeys. In both cases growth declined with the onset of scurvy symptoms, but until this occurred the growth made on diets containing dried milk was equal to that obtaining when equal rations of fresh milk were substituted.

Immunized Skin Grafts.—The method which Yates says was used by German surgeons during the war consists of placing the dressing, which has been in contact with the surface of the wound it is intended to treat and which is therefore soaked in the discharges of the wounds, on an area

of skin suitable for obtaining grafts by the Thiersch method and allowing this dressing to remain in position for twenty-four hours, after which it is replaced by another dressing removed from contact with the wound. Applied with these precautions, the skin with which the wound discharges were brought in contact, was found to redden and to show on the third day of the application a slight prominence of the papillae. It was necessary to watch the skin carefully at this point in the treatment as it is of considerable importance to guard against the occurrence of a violent reaction. When the skin showed a marked elevation of the papillae and slight reddening, the treatment of the area was stopped for a day, but in most cases it was possible to treat the skin in this way for a period of seven days, after which the graft was ready for removal.

Cryptopodia.—Bousfield's patient, a woman, 44 years of age, first noticed enlargement of the feet at the age of 15, coming on during the day and disappearing during sleep. She appears to have continued in service, though with increasing difficulty, until her twenty-fifth year, when she was attacked by rheumatoid arthritis, which left her hands crippled, and since then the feet have got steadily worse, so that for ten years she has not been able to walk. The suggestion is that of elephantiasis, but the fact that the toes are not involved in the tumor, and the great separation of the hair follicles, indicating distention, not hypertrophy, together with the translucence of the tumors, negative the idea of that disease. The swelling extends from about 3 inches below the knees, and involves the whole of both legs and the dorsum of the feet, but stops absolutely short at the margins of the soles, or rather folds over about half an inch higher all around. Around each ankle there is a well marked collar, with protuberances not coinciding with any anatomic structures. The skin pits deeply on pressure, but there is neither pain nor tenderness. Heart, lungs and kidneys are sound. A blood count showed 32 per cent. polymorphonuclear leukocytes, 17 per cent. transitionals, 51 per cent. small lymphocytes, but neither large mononuclears nor eosinophils. The red cells were very irregular in size, varying from 0.5 to 1.5 of the normal, but poikilocytes were few in number. Numerous specimens of blood taken at night failed to show evidence of filaria. The only suggestion as to the nature of the case was that it might be a variant of Milroy's disease, but there is an entire absence of hereditary element.

Archives des Maladies de l'App. Digestif, Paris

July, 1919, **10**, No. 4

*Lamblia Enteritis. A. Cade and A. C. Hollande.—p. 193.
*Mucous Gastric Catarrh. L. Pron.—p. 223.
*Gumma in Cecum. D. Giordano.—p. 236.

Intestinal Lambliosis.—Cade and Hollande describe with minute detail ten cases of chronic diarrhea in which *Giardia* (Lamblia) *intestinalis* was found. Its exclusive pathogenic rôle was demonstrated in these cases. Fairise and Jannin even found the parasite burrowing deep in the bowel wall, but there is a possibility in their case that the patient may have had a preceding dysentery. The parasites ensconced in the walls escape the action of drugs by the mouth. Experience and review of the literature seem to show that neoarsphenamin by the vein is the most effectual treatment known to date. The predominant symptom is diarrhea, and it may develop gradually or with an acute onset resembling dysentery. Formed stools are extremely rare, but there is little subjective disturbance even during the exacerbations. The liver is not enlarged, but the colon is somewhat tender and the left "colonic cord" is distinct. The patients are usually thin and pale but not enough to harmonize with the long duration of the affection. The temperature may keep normal over long periods, but they often noted slight evening rises, and in one case there was high fever at times. There are no striking blood changes, and they never found pus in the stools with lambliosis. No improvement was noted in two of three cases under hydrochloric acid, but in the third case the benefit was pronounced, and the cysts of the lamblia disappeared from the stools (two examinations). From 1 to 1.5 gm. of the hydrochloric acid was taken daily in "albuminous water" for twenty or thirty days. (The *eau albumineuse* of the French Codex is made with the whites of four eggs beaten up in 1 liter of water, flavored with orange-flower water.)

Mucous Gastric Catarrh.—Pron emphasizes that continuous or exaggerated secretion of gastric juice is not all that comes under the heading of gastric catarrh. When splashing can be heard in the stomach twelve or fourteen hours after the last meal, and a thick alkaline, neutral or only slightly acid fluid can be aspirated then from the stomach, there is evidently mucous catarrh alone. Saliva floats on the stomach content and does not blend with it, and mucus from the esophagus is more fluid and clearer; it filters readily, and the chlorid content is small, differing widely in these respects from gastric mucus, which looks more like a thick solution of acacia. On centrifugation it yields a thick clot formed exclusively of ricelike granules which are dissolved by acetic acid. He has encountered 21 cases of this mucous catarrh, including 7 in which there was accompanying slight acid hypersecretion. Some of these patients present the clinical picture of continuous hypersecretion, others of hyposecretion with little appetite, and oppression after dinner. Some complain of pain in the bowels in the morning, probably from difficulty in passage of the thick mucus through the bowel. Vomiting of mucus was known in only 4 of his 21 cases. The other symptoms are those of ordinary gastric disturbance except that there was enterocolitis in 7 of the 21 cases. The excessive secretion of mucus interferes with digestion in the stomach, it weighs down the organ and by modifying the concentration of the stomach contents retards the opening of the pylorus. The aim in treatment is to keep the mucus dissolved, and for this alkalines are required, such as half a glass of Vichy water taken tepid before breakfast. Sodium carbonate, 0.5 gm. in water, at the close of meals, has proved useful in some but not in all cases. In infants, Gautheley was successful in the graver forms with rinsing out the stomach with Vals mineral water three times a day. The diet should exclude soft foods like purées, milk, etc., which only augment the mechanical disturbance. Salt, condiments and carbonated mineral waters help in the evacuation of the stomach, and a correctly applied band to sustain the sagging organs, and also hydrotherapy may be useful. The diet should differ according to the type of reactions; when they are sluggish and gastric secretion is low, meat, with salt and condiments may stimulate the stomach, aided perhaps by hydrochloric acid, 10 drops in half a glass of water at the beginning of the meals, supplemented by nux vomica to promote the evacuation of the stomach. With a lively reaction, meat and condiments should be avoided, giving the preference to fish, green vegetables and eggs, taking hot sage tea in the morning, fasting, and giving belladonna to soothe the stomach mucosa, and after meals a tablespoonful of a mixture of 3 gm. each of sodium sulphate, sodium phosphate and sodium bromid in 300 gm. distilled water.

Gumma in Cecum.—The gumma was discovered during an appendicectomy, and Giordano removed the segment of the cecum along with the appendix.

Archives Médicales Belges, Liége

April, 1919, **72**, No. 4

Nervous Disturbances after Industrial Accidents. R. Verhoogen.—p. 385.
Evaluation of Disability Pensions for Mental Disturbances in Soldiers. H. Hoven.—p. 408.
*Calculi in the Urethra. Van den Branden.—p. 427.
Electrons and Radiant Energy in Therapeutics. Van de Maele.—p. 432. Conc'n.

Calculus in Urethra.—Van den Branden reports a case of acute recent gonorrhea with pain on urination, and about the fifth day a hard tender tumor was palpated 2 cm. from the meatus. The tumor was treated on the assumption of an acute inflammatory process in Littré's glands, which the palpation findings seemed to indicate. They persisted unmodified for two weeks. Then endoscopy revealed the tumor to be a calculus, 1 by 1.5 by 0.5 cm. Strictures had developed at this point during these two weeks. There never had been any symptoms from the urinary apparatus before the gonor-

rhea, and the assumption of an acute littritis seemed unquestionable, until the calculus was discovered.

Archives de Médecine des Enfants, Paris

August, 1919, **22**, No. 8

Some Special Features of the American Red Cross Dispensary at Havre. E. A. Park.—p. 393.
*The Urea Content of Blood. J. A. Van der Starp.—p. 414.
*Phimosis and Disturbance in Micturition in Children. J. A. Phélip and C. de Galard.—p. 424.
Erythema Nodosa and Acute Endocarditis in Boy of Eight. De Meuron.—p. 428.

Urea Content of Blood of Children.—Van der Starp has modified the Ambard ureometer so that it can be used with only 1 c.c. of blood. The blood is drawn directly into 3 c.c. of a 0.1 per cent. solution of potassium oxalate. The whole blood is used, and it is drawn into this hemolyzing and coagulation-preventing fluid, and the ureometer is graduated for hundredths of cubic centimeters. No centrifugation is required, and the whole procedure is so simple and easy, he declares, that the busy practitioner can thus conveniently inform himself in regard to the work of the kidneys, even in infants, applying the Ambard formula from the ureometer findings. The ureometer is based on the alkaline bromid reaction, which he regards as the most reliable test. This method has hitherto had to contend with the drawback that 20 c.c. of blood were required for it. An illustrated description is given of the modified ureometer which works with only 1 c.c. of blood.

Phimosis in Infants.—Phélip and Galard have been reexamining recently 51 children who had been operated on for phimosis some time before. In every case in which there had been balanoposthitis, it promptly healed after the operation for the phimosis. With incontinence of urine, the operation was followed by a complete cure only in 7 of the 18 cases but some improvement was manifest in 5 others. In one case showing no improvement, an operation on adenoids later was followed by improvement. With incontinence, other possible causes aside from the phimosis should be sought. If the meatus is unduly narrow, this is easily corrected as a rule by mechanical dilatation.

Archives Mens. d'Obstét. et de Gyn., Paris

February, 1919, **8**, No. 2, Pub'd July, 1919

*Abdominal Cesarean Section. P. Bar.—p. 49.
*Breech Presentation with Fetus in Hyperextension. A. Laffont.—p. 62.

Abdominal Cesarean Section.—Bar draws the balance sheet of high cesarean section, his conclusion being that it is almost certain to be a success for the mother and is absolutely certain for the child when the woman is not threatened with infection and the environment can be counted on and the simple technic is applied by not unskilful hands. The indications for it are when the bones or soft parts offer an obstacle that renders natural delivery improbable, and when circumstances compel rapid evacuation of the uterus while the os is still undilated. Its most promising field is as a prophylactic measure, early in labor or before labor has begun.

Breech Presentation with Hyperextension.—The child lived only two days, and necropsy showed that the bending of the head back on the spine during the course of the development of the fetus had prevented the normal development of the corresponding dura mater and spinal cord. The sudden straightening of the head during delivery had caused the dura mater to rupture at this point. Nothing was found to explain this hyperextension of the fetus before labor. Laffont compares with this case the few instances of fetal hyperextension on record, nearly all with breech presentation. Infants born with breech presenting are dolichocephalous in about 20 per cent. or more of the cases, from the pressure of the wall of the uterus on the head. The hyperextension predisposes to breech presentation. Slow delivery is the safest; rapid delivery, suddenly straightening the neck, is liable to rupture the dura or do other damage. A certain number of instances of paralysis of the brachial plexus may be traceable to some injury from forcible straightening when there has been breech presentation.

Bulletin de l'Académie de Médecine, Paris

July 29, 1919, **82**, No. 29

Venous Stasis from Tight Leggings as Factor in Trench Foot. Dopter.—p. 95.
Acute Appendicitis. Témoin and others.—p. 97.
*Rubber Implants to Substitute Bone. P. Delbet, Girode and Contremoulin.—p. 110.
*Surgical Correction of Wrinkles. R. Passot.—p. 112.
*Serotherapy of Traumatic Shock. P. Bouchet.—p. 115.
Medical Inspection of Country Schools. L. Aroulay.—p. 117.
*Actinomycosis of the Heart. M. Letulle and Hufnagel.—p. 120.
Local Arterial Blood Pressure in Diagnosis of Varicose Conditions and in Control of Treatment. L. Mabille.—p. 148.

Reenforced Rubber Endoprosthesis.—Delbet and his co-workers have previously reported their experiments with rubber implants to replace lost segments of bone, and they here give the details of two successful clinical cases. The gap in the radius crippled the men completely. The stumps were fitted each with a cover, and an adjustable reenforced rubber interpiece was fitted in between these covers. The bone recovered its normal length and strength at once. The results seventy and eighty-eight days to date are perfect both from the orthopedic and functional points of view, aside from a preexisting paralysis in one case.

Surgical Correction of Wrinkles.—Practically the same article was summarized recently, July 5, 1919, p. 70.

Serotherapy and Traumatic Shock.—Bouchet lauds the efficacy of a polyvalent antiserum (LeClainche and Vallée) both in prevention and in treatment of traumatic shock. No shock developed in 75 gravely wounded men treated with it, and the symptoms of established shock retrogressed in twelve others.

Actinomycosis of the Heart.—Letulle and Hufnagel describe in minute detail a case of actinomycosis of the entire heart and pericardium, inducing extensive lesions. The patient was a man of 34 and the actinomycosis seemed to have started first in the esophagus and spread thence to the heart and secondarily to the right pleura and base of right lung. The case confirms that wherever the actinomyces proliferates, it destroys all the tissues and organs in its way, whatever their structure.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 27, 1919, **43**, No. 22

*Lethargic Encephalitis. J. Lhermitte and De Saint Martin.—p. 607.
*Death in Influenza. M. Renaud.—p. 613.
*Acute Yellow Atrophy of the Liver. M. Garnier and J. Reilly.—p. 622.
*Malaria and Diarrhea. E. Job and L. Hirtzmann.—p. 629.
Traumatic Hemiatrophy. d'Oelsnitz and L. Cornil.—p. 634.
*Seasickness. P. Cazamian.—p. 638.
Committee Report on Isolation of the Tuberculous.—p. 641.

Lethargic Encephalitis.—Lhermitte and Saint-Martin report a case, with recovery, of what they call primary poliomesocephalitis with narcolepsy, or ophthalmoplegic encephalitis with narcolepsy. The mesocephalic region seems to be primarily affected, and the usual term, lethargic encephalitis, is too broad. They comment on the remarkable absence of any changes in the fundus in their numerous cases of this kind, also the absence of albuminosis and of pleiocytosis in the spinal fluid, the absence of the Argyll Robertson sign and the negative Bordet-Wassermann reaction. They treated all these patients with hexamethylenamin by the mouth and there were no deaths in their series. The case here reported was exceptionally severe, and they gave, besides, three daily intravenous injections of 1 or 1.25 gm. of hexamethylenamin, at the same time withdrawing 6 c.c. fluid by lumbar puncture just before the third injection. The secretion of the choroid plexuses is assumed to be activated by this, and thus to allow more of the drug to pass into the cerebrospinal fluid. Be this as it may, the patient's condition improved notably at once and the procedure seemed absolutely harmless. The first intravenous injection had been supplemented only by a dose of 1 gm. of the same drug by the mouth. The first symptoms had been noted ten days before.

Death in Influenza.—Renaud's analysis of the lesions in the fatal cases of influenza and of the mechanism of death

has convinced him that instead of speaking of "influenza in a pulmonary form" we should define it as "a pneumococcus infection of the lung, epidemic and contagious." This conception entails the practical conclusion that every case of influenza, even the mildest form, should be regarded as potentially grave and should be treated accordingly (bed rest, baths, preventive digitalis). It shows further the futility of all the measures when applied late, after the inevitably fatal process is well under way. It assures us, moreover, that treatment will be effectual in the immense majority of cases. In his service, treatment based on these premises and applied with increasing confidence brought the mortality down from 7 per cent. (May-December, 1918) to 2.5 (December-March, 1919) and to 0.2 per cent. (February-April), although the proportion of grave pulmonary forms was highest in the latest series. These premises also justified the simultaneous injection by the vein of epinephrin and antipneumococcus serum which brought on without fail a crisis identical in every respect with the salutary crisis of frank pneumonia, all the twenty-seven thus treated recovering rapidly and completely although they were the gravest cases in a series of 130. "The disease is in the lungs but the outcome depends on the heart." Multiple and extensive foci of hepatization in the lungs were found in all the fatal cases. This entails asphyxia, and heart failure completes the vicious circle. Treatment should be based on physiology. Even in threatening cases, simple hygiene and dieting, with a few cold packs often aborted the disease in two days.

Acute Yellow Atrophy of the Liver.—Garnier and Reilly report four cases of infectious jaundice which differed in many respects from icterohemorrhagic spirochetosis, although occurring under similar conditions. No micro-organisms could be discovered, but necropsy revealed typical acute yellow atrophy of the liver. The men died in from two to four days after the first appreciable symptoms. The jaundice from spirochetosis seldom proves fatal before the eighth to the thirteenth day and the symptoms are more from the kidneys than from the liver.

Malaria and Diarrhea.—Job and Hirtzmann warn that malarial diarrhea is not uncommon but may be mistaken for dysentery. The laboratory excludes the latter, and the way in which the diarrhea subsides under quinin confirms the malarial origin, or the aggravation of a preexisting enteritis by the malaria.

Seasickness.—Cazamian is the chief medical officer on the cruiser *Jean-Bart*, and he has made a special study of fifty cases of seasickness during the last two years. This has convinced him that the abnormal sensations and stimuli induced by the movements of the ship act on the nervous system of the vegetative life (autonomic and sympathetic nerves). The sympathetic nervous system thus becomes irritated. Its hyperexcitabity is manifested in the higher blood pressure, tachycardia, inversion of the oculocardiac reflex, and dilation of the pupils. The symptoms suggest excessive production of epinephrin at first. Then the suprarenals become exhausted, and the blood pressure drops. During the first phase there is a sympatheticotonic paroxysm; during the second phase the clinical and pathogenic phenomena are like those of shock. Persons inclined to sympatheticotony are peculiarly predisposed to seasickness while the vagotonic escape. In the second phase, epinephrin by the mouth (6 mg. in three doses at half hour intervals), gives good results, but it is of course directly contraindicated during the first phase, the hyperepinephrin stage. During this phase, he has obtained absolutely constant excellent results, both in prevention and in curing the seasickness, from hypodermic injections of neutral sulphate of atropin in doses varying from 0.001 to 0.002 gm. As we know of no drug that will check the functioning of the sympathetic nerve, the next best thing is to act on the antagonist nervous system. By influencing the vagus in this way with atropin, we thus indirectly control the sympathetic. The question whether epinephrin or atropin is called for in the individual case is easily answered by the oculocardiac reflex. His experience indicates that with one or the other of these two drugs we can ward off and cure seasickness, he reiterates in conclusion.

Journal de Radiologie, Paris

August, 1919, **3**, No. 7

Radioscopy of the Aorta. Cerné.—p. 289.
Cure under Roentgen Treatment of Enormous Angioma on Face of Little Girl. Funck and L. Hauchamps.—p. 294.
*Case of Hemophilia of the Joints. F. Escande and J. Tapie.—p. 298.
Localization of Foreign Bodies in the Eye. P. Perol and G. Barin. —p. 303; Id. H. Fraudet.—p. 310.
Electric Treatment of Segmentary Edema after War Wounds. M. Berthomier.—p. 312.
*Radiotherapy of Brain Tumors. S. Nordentoft.—p. 314.
Estimation of Depth of Foreign Bodies. Guilbert and Cimbert.—p. 316.
Condensing Osteitis. L. Moreau.—p. 318.
*Roentgen Picture of Filaria. Delort.—p. 320.
Errors in Interpretation of Roentgen Picture of Stomach. A. Laquerrière.—p. 321.
Roentgen Picture of Projectile Passing from Inferior Vena Cava into the Right Ventricle. F. Menuet.—p. 323.

Hemophilic Joints.—Escande and Tapie analyze the roentgen findings in the knees of a hemophilic boy of 9. The tendency to purpura and joint affections was noted from the age of 4 and 16 months. The recurring hemarthritis of the knees had crippled the boy from the resulting chronic panarthritis which at first suggested tuberculosis. Addition of an emulsion of normal blood corpuscles to the boy's blood corrected the delay in the coagulation, confirming the assumption that the blood in hemophilia is lacking in certain ferments of leukocyte origin. No tendency to hemophilia could be detected in other members and branches of the family but the blood findings are of the familial type, suggesting that this boy is the first of a line of bleeders. The roentgen findings in the joints differ with each case, but in this boy all the features of the other cases on record seem to be combined.

Radiotherapy of Brain Tumors.—Nordentoft has now a record of eighteen cases of brain tumors given roentgen treatment since February, 1915. Nine of these patients are living and in good health, except hemianopsia in one case, and that vision is rather poor in another case in which the patient had been almost completely blind before the radiotherapy. (A previous communication from him on this subject was briefly summarized in these columns, May 18, 1918, p. 1510.) He describes here two especially striking cases, one in a young lawyer who had become imbecile, with incontinence of both stools and urine. It proved impossible to localize the assumed tumor, which was supposed to be a diffuse glioma, presumably in the frontal lobe, and the entire head was submitted to cross-fire exposures, brow, parietal and temporal regions, omitting only the occiput as this was so difficult to reach. The aluminum filter was 10 mm. thick and the rays were applied until depilation was complete. Improvement was evident by the fifth or sixth day, and recuperation was soon complete, so that the patient was able to resume the practice of law. In two cases of cerebellar tumors the permanent cure was soon realized; a third in this group died, and the fourth did not seem to improve except that the course of the tumor was arrested. An operation some time later revealed a cyst in the cerebellum, and the patient recovered after the cyst had been drained. There is a possibility that the cyst had developed in the space left by the healing of a tumor under the preceding roentgen treatment.

Roentgenogram of Guinea-Worm.—The roentgen picture of the leg shows very clearly a long narrow, dark mass which feels under palpation like the intestine with the bismuth suspension. The only explanation possible, Delort says, is that the shadow is cast by an old calcified *Filaria medinensis*. The patient is a native of the tropics.

Lyon Médical

July, 1919, **128**, No. 7

Pneumococcus Meningitis Consecutive to Contusion of the Skull without Fracture. S. Bonnamour and A. Macrygenis.—p. 321.
Pcus from Gallstones; Five Cases. M. Guérin.—p. 325.
Pathogenesis of Fever. Widmann.—p. 331. Conc'n.
Life at Liége During German Occupation. Henrijean.—p. 363. Conc'n.

Paris Médical

Aug. 9, 1919, **9**, No. 32

*The Arterial Pressure During Bombardment. G. Etienne and G. Richard.—p. 109.
*Chemistry of the Intestines. R. Gaultier, Roche and Baratte.—p. 115.

Blood Pressure During Bombardment.—Etienne and Richard write from Nancy: "Several years of medical observation in a bombarded city have attracted our attention to the rôle which war emotions may play in respect to the state of the arterial tension." Since they began to study it (January, 1916), a number of communications on this subject have appeared, but they all related to soldiers, that is, to healthy young men. Their Nancy report deals with 100 subjects of all ages, many examined repeatedly during the years of bombardment as they sought shelter in a certain cellar. The findings confirm that every violent emotion modifies the arterial pressure, usually sending it up for five or ten minutes and then it drops below normal for from a few minutes to two or three hours. Exceptionally, and only in the young, there is primary hypotension with tachycardia. The blood pressure returns to normal in the young under repeated or continued emotional stress much sooner than in the elderly. The latter may still show hypotension months after the danger is past. The data accumulated in this research confirm that very intense fear has an inhibiting or even a destructive action on the suprarenals, but less intense emotional stress has merely a stimulating action on them, inducing excessive production of epinephrin. With recurring fear, as in a bombarded town, the suprarenals are kept in a chronic state of excessive production of epinephrin, and this keeps up a chronic overstimulation of the sympathetic system with all that this implies for the whole endocrine and vasomotor systems.

Chemistry of the Intestines.—The duodenal juice was examined separately and the findings were compared with those from analysis of the stools. Gaultier and his co-workers tested the duodenal juice for bile pigments with Fauchet's reaction and the stools for pancreatic juice by titration with commercial pancreatin. They tabulate the findings in five normal persons and in eight with various gastro-intestinal disturbances. They found that the coprologic examination usually gave results that harmonized with the duodenal juice findings, thus completing the oversight of bowel functioning. But analysis of the stools was far more instructive than of the duodenal juice as the information it imparts bears on the sum total of the digestive activities, instead of the partial information which is all that can be learned from the duodenal content.

Aug. 16, 1919, **9**, No. 33

*Treatment by the Mouth of Chronic Amebiasis. P. Ravaut and Charpin.—p. 125.
*Undulant Fever from Hidden Diseased Glands. P. Harvier.—p. 130.
*History of Traumatic Commotion. R. Benon.—p. 137.

Treatment of Chronic Amebiasis.—Ravaut and Charpin expatiate on the necessity for varying the treatment of rebellious chronic amebiasis to conform to current conditions. They have obtained gratifying results with a paste made of charcoal, bismuth and ipecac, alternating this with neo-arsphenamin. This treatment, entirely by the mouth, is well tolerated; it soothes the intestinal disturbances and seems to act rapidly on the parasites. It does not depress the appetite, which is very important, as the patient is saved if he eats, assimilates and increases in weight. Small enemas of neo-arsphenamin usefully supplement other measures, using not more than 0.15 or 0.30 gm. in 50 or 100 gm. of water, so that it will be retained. The paste mixture they use contains 100 gm. each of pulverized wood charcoal, bismuth subnitrate, simple syrup and glycerin, with 4 gm. of pulverized ipecac. This is 0.1 gm. of ipecac to the teaspoonful, and from two to ten teaspoonfuls are taken during the twenty-four hours. If there is violent diarrhea, with pains, they add 0.80 gm. of pulverized opium to the above mixture. This paste is taken for one day, the second day one or two capsules of 0.10 gm. neo-arsphenamin (novarsenobenzol); the third day the paste again, and the fourth neo-arsphenamin, and so on alternately. In the five cases described, the men bore this treatment without nausea or colic, and one increased 5 kg. in weight in five months and another gained 2.2 kg. in forty-five days. A marked influence on the parasites was evident in three cases but not in the two others, although the men were gaining in weight and strength, weighing 6 and 10 kg. more in two months, and the stools were frequently although not always free from the parasites.

Fever from Deep-Seated Glandular Disease.—Harvier gives charts from three cases in which a wavelike fever suggested Malta or undulant fever. There were afebrile periods in three, lasting for two to five days. One patient had eight of these waves, each from nine to fourteen days long. In three others the temperature did not drop quite to normal in the intervals. The spleen was enlarged in all but the liver seemed to be normal. There was also moderate anemia, but no change in the leukocyte numbers or formula, and no pathologic peripheral glands. Necropsy in three cases described in detail revealed a severe glandular process deep in the abdomen or mediastinum. In one of these cases, the primary mediastinal adenopathy had been followed by other lesions of other glands in the groin and elsewhere. As each of these glands became involved, a new wave of fever was observed. Undulant fever, therefore, should suggest a possible deep-seated adenopathy which raying might reveal.

Traumatic Commotion.—Benon reviews the earlier works on railway spine, railway brain, traumatic asthenia, citing as the pioneers Dupuytren in France (1832), Ericksen in England (1886) and Knapp in America (1888). In Dupuytren's work we find the exact description of transient or prolonged traumatic asthenia just as it is encountered today.

Presse Médicale, Paris

Aug. 11, 1919, **27**, No. 44

*Indications with Wounds of the Unopened Thorax. J. Ducuing.—p. 437.
Principles for Functional Prosthesis for Radial Paralysis. J. Privat.—p. 439.

Wounds of the Chest.—Ducuing expatiates on the recent broadening of the indications for operative intervention in cases of penetrating wounds of the chest with the chest cavity closed.

Revue Neurologique, Paris

March, 1919, **26**, No. 3

Nystagmus of Rotatory Origin in Normal Subjects. L. Bard.—p. 177.
*The Babinski-Nageotte Syndrome. P. Descomps and Quercy.—p. 187.
*Reflex Phenomena from Distention of Tendons. Noica.—p. 196.
Rarefaction of the Bones in a Case of Progressive Spinal Muscular Atrophy. A. Barbé.—p. 201.

The Babinski-Nageotte Syndrome.—Descomps and Quercy describe another case of the set of symptoms from disorder of the posterior inferior cerebellar artery, with certain special features.

Reflex Phenomena from Distention of Tendons.—Noica analyzes and groups the organic signs which characterize a lesion of the pyramidal tract, but instead of eliciting the tendon phenomena by percussing the stretched tendons he seeks to distend them.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 31, 1919, **49**, No. 31

*Pregnancy with Diseased Heart, Lungs or Kidneys. P. Hüssy.—p. 1145.
*Functions of the Cerebellum and Adjacent Organs. E. Rothlin.—p. 1161. Com'd in No. 30, p. 1113.
*Respiration Curve at the Apex. F. Stirnimann.—p. 1171.

Outcome of Heart, Lung and Kidney Disease After a Pregnancy.—Hüssy states that of the 15,352 parturients delivered at the Basel Women's Hospital in the ten years ending with 1917, 35 had heart disease and 9 per cent. of these died at delivery and 18 per cent. not long after. In 40 per cent. the disease had evidently been aggravated by the pregnancy, and only 50 per cent. seemed to bear the pregnancy and delivery without harm. In 17 per cent. the condition became aggravated during the pregnancy, and abortion had to be induced. Of the 76 parturients with manifest pulmonary tuberculosis, 6 per cent. succumbed at delivery and 10 per cent. soon after; 17 per cent. had the condition aggravated during the pregnancy, but 66 per cent. passed through the pregnancy apparently unharmed by it although in this group 8 per cent. showed an aggravation during parturition. Of the 15 women with chronic nephritis, 20 per cent. died at delivery and only 43 per cent. passed through the pregnancy without aggravation

of the kidney disease. His figures show further that very few of the women with mitral stenosis survived their pregnancy, some dying before delivery. On the other hand, latent pulmonary tuberculosis did not seem to be much influenced by the pregnancy, and even in the manifest forms the condition seemed to improve. The women may succumb a few years afterward to the aggravation of the condition by the propagation of the bacilli at the time of the delivery; the pregnancy in itself does not seem to entail aggravation. With chronic nephritis, the primary mortality was high, but after delivery the condition seemed to improve. Hüssy compares these experiences with those of others in this line.

The Functions of the Cerebellum.—Rothlin's extensive experimental research and clinical experience confirm Bolk's statements as to the localization of certain motor centers in the cerebellum. When the anterior lobe of the cerebellum is irritated with curare, the symptoms observed are not traceable to the cerebellum, as Pagano insists, but to the action of the poison on the adjacent organs, especially the fourth ventricle.

Respiration Curve at the Apex.—Stirnimann refers particularly to the curve in children and youths recorded with the Jaquet sphygmocardiograph and three Marey drums, one for each apex and one for the chest expansion. These three simultaneous and symmetrical curves show always in health well defined high peaks, nearly symmetrical. The difference is striking in the pathologic cases, even with incipient disease. He gives typical curves, and commends this method as very instructive in detection of the earliest phases of apical disease in the young.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 20, 1919, 40, No. 58

*To Combat Demineralization. U. Baccarani.—p. 586.

July 24, 1919, 40, No. 59

Valvular Defect from Chronic Traumatic Endocarditis. G. Cappello.—p. 601.

July 27, 1919, 40, No. 60

Laryngeal Abscess in Influenza. E. Peretti-Griva.—p. 611.

Remineralization of the Organism.—Baccarani insists that mineral salts in the form of drugs are utilized far less than the mineral salts found in certain plants, seeds, etc. These he calls "living mineral salts" and urges their systematic use in therapeutics, but does not specify what seeds or amounts he gives in the mixture he uses.

Rivista di Clinica Pediatrica, Florence

July, 1919, 17, No. 7

*Esophagoscopy. A. Orlandini.—p. 337.
Appendicitis Secondary to Scarlet Fever. A. F. Canelli.—p. 362.

Esophagoscopy.—Orlandini used a small straight spatula tube, perforated, with a right-angled handle, for direct esophagoscopy in two children recently, and it worked like a charm. One child was 2½ years old and the other 18 months, and no anesthetic was used. The subject sits in a low chair, only 15 cm. high, with back and arms and a horizontal extension 1.30 meters long, with adjustable crossbar for the feet to brace against. The physician sits on a high chair, 70 cm. high, that straddles the low extension and the patient's legs. The patient is thus restrained from moving while his head is held from behind by a nurse. This arrangement is peculiarly advantageous for anesthesia and for various operations as the patient is comfortable as if sitting up in bed, while the arms of his chair hold his trunk and pelvis firm and his legs are held between the legs of the tall chair and the physician's legs as the latter sits in the high chair the seat of which tilts forward a trifle. When the patient is a small child, the nurse sits in the low chair holding the child.

In the 2 year old child the tube was passed safely down to below 13 cm. but then the child suffocated, and the tube had to be withdrawn and artificial respiration applied for ten minutes. When all was in order again, the tube was passed easily down beyond this point, but was then arrested by the bulging mucosa. The probe gave the impression of a foreign body below this. A smaller tube was then introduced through the first tube, and this passed the obstacle with a sudden jerk as if a solid foreign body had been dislodged. The lumen filled up at once with thick mucus, slightly blood streaked, and a scrap of a chestnut was found in it. The larger tube could then be pushed down to the stomach. As it was withdrawn, the walls of the esophagus were seen to be normal all the way, and its permeability had been completely restored. The whole chestnut had been swallowed over two months before this procedure. The first two weeks the esophagus had been completely obstructed; after this, fluids could be swallowed. The chestnut had probably been impacted first at the root of the neck, and had later dropped down to the constriction of the thoracic segment, 17 cm. from the teeth. The symptoms were the usual vomiting and metallic, spasmodic cough whenever food was taken, with occasional attacks of suffocation but no pain. With a foreign body in the air passages there is pain during breathing and speaking, and the child refrains from moving about and speaking. The great danger is that the foreign body will be overlooked and the disturbances ascribed to stomach disease.

This method of introducing one endoscopic tube inside of another when the first is arrested by some obstruction, has been successfully applied by Orlandini in cases of chronic stenosis of the bronchi, without complicated apparatus. In the case described above, various other measures had been tried before but all had failed, including local application of epinephrin and cocain on probes, seeking thus to induce the subsidence of the protruding mucosa. In his second case the esophagoscope revealed the foreign body about 15 cm. from the teeth and showed an inflammatory reaction around it. Aspiration through the tube dislodged the chestnut and it dropped into the stomach. The 18 months infant bore the esophagoscopy well, without much salivation, but finally showed signs of suffocation and the tube was removed. When introduced anew, the foreign body had vanished. In both cases the foreign body was a nut, a *castagna* and a *marron*, not metal. And neither of the children seemed to experience any ill effects afterward. He mentions parenthetically a case in which a foreign body was expelled spontaneously after the boy of 8 had drunk 100 gm. olive oil and 1,300 c.c. of tepid boiled water, and had been placed slanting on the table, the head pendent, and his throat tickled with a feather. He first vomited a small amount and then came a gush that swept out the foreign body, a cravat holder, which he had been using for a whistle.

Archivos Brasileiros de Medicina, Rio de Janeiro

April, 1919, 9, No. 4

*Pathogenic Action of Trichocephalus Dispar. Fernandes Figueira.—p. 191.
*Bacteriology of Pertussis. A. de Vasconcellos.—p. 215.
Prophylaxis of Trachoma. R. David de Sarson.—p. 234.
*Intermittent Fever in Third Stage of Syphilis. A. de Medeiros.—p. 248.

Pathogenic Action of Trichocephalus.—Fernandes found intestinal parasites in 89 per cent. of 101 cadavers at the children's clinic at Rio de Janeiro. In 15 the trichocephalus was discovered, and all in this group had had bowel trouble, but in another group of 12 the trichocephalus was found but bowel functioning had been normal. In a third group of 6 there had been bowel trouble but no parasites were discovered. In all but 4 of 62 living children examined, ascarides were associated with the trichocephalus in the stools, but blood was found only in 29 per cent. of the 58 trichocephalus cases. He was unable to discover any evidence of a constant specific anemia due to the presence of the trichocephalus, and he never found visible blood in the trichocephalus parasites although they often gave a positive response to the benzidin blood test. A trichocephalus preparation made and applied like tuberculin never elicited a positive reaction, and children with the trichocephalus in the stools but no bowel disturbance were repeatedly encountered. He gives an illustration of a segment of the intestine of one child which was studded with adherent specimens of the trichocephalus. The child had died from chronic enteritis, but at the points where the parasites were adherent the tissues seemed to be quite sound.

Bacteriology of Pertussis.—Vasconcellos treated children with whooping cough with a vaccine made from Bordet-Gengou bacilli. He tabulates the outcome in twenty-three cases of one month's standing, in nine of two months, one of four months, twenty-six of fifteen days and twenty of ten days. Rapid improvement followed this vaccine therapy, which was applied every two or three days. His vaccine differs from others in that he makes it by adding 20 per cent. of an ethereal extract of pertussis sputum to a suspension of Bordet-Gengou bacilli killed with fluorids. With this technic there is no refractory phase. The temperature sometimes ran up afterward but there never was any aggravation of the cough but the symptoms rapidly subsided, irrespective of the duration of the disease. This suggests that the vaccine acts by correcting the tendency to anaphylaxis which seems to be responsible for the paroxysms. This bacteriotherapy is most effectual where there are large numbers present of the Bordet-Gengou bacilli. The vaccine seems to be entirely harmless, and can be used even for infants.

Intermittent Fever with Tertiary Syphilis.—De Medeiros reports four cases of intermittent fever which seemed to be due unquestionably to malaria but no benefit followed the use of quinin, while all the symptoms rapidly yielded to treatment as for syphilis. He suggests the name "syphilitic paludosis" for such cases.

Brazil-Medico, Rio de Janeiro

June 28, 1919, **33**, No. 26

*Neoarsphenamin in Treatment of Yellow Fever. H. de Beaurepaire Araújo.—p. 201.
Statistics of Influenza Epidemic. Bulhões Carvalho.—p. 202. Conc'n.

July 5, 1919, **33**, No. 27

Arteriovenous Aneurysm of the Aorta. E. Tornaghi.—p. 209.

Neo-Asphenamin in Yellow Fever.—De Beaurepaire's first report on the benefit from neo-arsphenamin in treatment of yellow fever was briefly summarized in THE JOURNAL, Feb. 23, 1918, p. 578. He here reviews the experiences in this line to date, the verdict of all who have applied this treatment being favorable. He cites eight physicians in northern Brazil who have applied this treatment. The first dose should be large, to strike hard at once. The experience to date indicates that doses of 0.45 or 0.60 gm. were borne, without harm by the yellow fever patients, and he is now advising an initial dose of 0.90 gm.

Crónica Médico-Quirúrgica, Havana

July, 1919, **45**, No. 7

Education of Woman. J. Santos Fernández.—p. 204.
Spring Conjunctivitis in Cuba. J. Santos Fernández.—p. 211.

Gaceta de los Hospitales, Mexico, D. F.

Aug. 3, 1919, **2**, No. 5

*Abnormal Children. A. Lozano Garza.—p. 48. Con'd in No. 2, p. 17.
Surgery of Goiter. Velásquez Uriarte.—p. 53. Cont'n. 7
*Ether and Oil Anesthesia by the Rectum. D. Mayoral Pardo.—p. 56. Con'd in No. 4, p. 44.

Abnormal Children.—This is a general review of the various types of abnormal children and the tests for classification.

Ether and Oil Anesthesia by the Rectum.—Mayoral gives an oversight of what has been done in the line of general anesthesia by way of the rectum. In a case in his own experience the patient suddenly stopped breathing but the wound was bleeding freely, and he thinks that this aided materially in resuscitation, so that he would recommend venesection in treatment of serious by-effects with ether by the rectum. The bowel should be rinsed out at the same time. One of the great advantages of this technic is that it does not require a skilled anesthetist, and hence may be found useful in country practice. The grave disadvantage, of course, is the impossibility of exact dosage.

Medicina Ibera, Madrid

June 7, 1919, **7**, No. 83

*Leprosy in Spain. J. H. Sampelayo and Sadi de Buen.—p. 181.
*Intravenous Injection of Camphorated Oil. J. M. de Otaola.—p. 182.
*Parenteral Injections of Milk with Eye Disease. B. Carreras Duran.—p. 183. Conc'n.
Eruptions with Respiratory and Digestive Affections. Sicilia.—p. 185.

Leprosy in Spain.—Reviewed when published elsewhere, Sept. 6, 1919, page 801.

Camphorated Oil by the Vein.—De Otaola relates that experiments on animals with intravenous injections of camphorated and other oils apparently proved the harmlessness of the procedure, but he never ventured to apply it in the clinic until Heitz-Boyer published his success with it in a gravely wounded man. He declared that the instantaneous action of the camphor by this route had been unquestionably the means of saving the man's life, and there was nothing to suggest embolism. He applied it in eight cases and it has been used since repeatedly in the hospitals of Paris, with identical results. De Otaola here reports a case of a double mitral lesion, insufficiency and stenosis, in which a sudden attack of heart weakness, cyanosis, and loss of consciousness was relieved at once by intravenous injection of 4 c.c. of 20 per cent. camphorated oil. The woman revived at once and was restored to her usual condition, when before she seemed moribund.

Parenteral Injections of Milk in Treatment of Ocular Affections.—Carreras reports seven cases and states that the pain and photophobia were promptly arrested by this treatment, in most of the cases within twenty-four hours, and complete restitution soon followed. With the exception of one case in which special circumstances interfered, the effects of the injections of sterilized milk were truly surprising, and one might almost say marvellous (*casi diria maravillosa*), in cases of serious eczematous keratitis as also in his case of iridocyclitis. The results in treatment of trachomatous pannus were also encouraging, although not decisive to date. Aside from the constant febrile reaction, there were no signs of intolerance in any instance. He injected 5 c.c. of milk in the buttocks at about eight days' interval, never giving more than three injections, and reducing the amount a little each time. He does not attempt to explain the mechanism of the action of this parenteral milk treatment, but commends it as harmless with proper technic.

June 14, 1919, **7**, No. 84

Surgical Treatment of Gastric Ulcer and Its Complications. C. G. Peláez.—p. 201. Cont'n.
Tuberculous Iritis Plus Gummatous Keratitis. Leoz Ortin.—p. 204.
*Obsessions. A. Sánchez Herrero.—p. 205.

The Fixed Idea.—Sánchez explains that a fixed idea is like a foreign body in the consciousness. Every passion, including love, he says, is a pathologic condition, a disease of the spirit, rooted in an obsession.

Prensa Médica Argentina, Buenos Aires

May 20, 1919, **5**, No. 35

*Nerve and Muscle Response to Electric Stimuli. J. Guglielmetti.—p. 341.
*Blindness with Diabetes Insipidus in Boy of Ten. E. Dameno.—p. 345.

Response to Electric Stimulation.—Guglielmetti entitles his article "Interpretation of the Polar Laws," and discusses the various applications of electricity in diagnosis. He remarks that it is impossible to interpret the findings by clinical observation alone, but experiments on animals and study of physical laws throw light on them, as he explains in detail.

Visual Disturbances in Diabetes Insipidus.—Dameno relates that the boy of 10 had presented symptoms of diabetes insipidus for four years, and during the last year there were transient attacks of amblyopia and progressive reduction of the visual acuity to 1/50 in the left eye and no perception of light in the right. The sella turcica was somewhat enlarged but seemed of normal structure. As inherited syphilis was manifest, specific treatment was pushed and marked improvement followed but it did not last, and the child died after a period of intense headaches, neuralgia and loss of vision. The symptoms corresponded to a lesion in the vicinity of the optic chiasma. The literature on diabetes insipidus shows that different causes may be invoked in different cases, syphilis, tuberculosis, tumor and traumatism. In the present

case some syphilitic process had probably induced diffuse infiltration involving the optic chiasma and the pituitary body.

Revista Española de Obstet. y Ginecología, Madrid

June, 1919, 4, No. 42

*Radium Treatment of Cancer of Uterine Cervix. S. Recasens.—p. 241.
*Spinal Anesthesia in Gynecology. F. Navarro Blasco.—p. 247.
Histogenesis of Corpus Luteum. L. G. Guilera Mons.—p. 255.

Doses for Radium Treatment of Cancer of Uterine Cervix.—Recasens warns that low numbers of leukocytes formally contraindicate large doses in radium treatment. The patients as a rule bear medium doses, frequently repeated, better than large doses at longer intervals. Exposures for more than twenty-four hours at a time are not borne well, as a rule. Prolonged fever also requires suspension of the treatment. He regards radium treatment as the chosen method of treatment for cancer of the uterine cervix, unless it is so small and circumscribed that it is possible to eliminate all the neoplastic elements with operative removal of the tumor. In conclusion he specifies as beyond our skill the cases of cancer of the cervix in which profuse hemorrhage results from the eroding of the walls of the larger vessels. If two or three applications of large doses of radium do not rapidly arrest the disease, it is better to desist and to regard the case as beyond our best efforts.

Spinal Anesthesia in Gynecology.—Navarro expatiates on the superior advantages of the subarachnoid technic when an operation on the vagina promises to be long and tedious. Its great drawback is the liability to headache and fever, but the headache, although annoying, is not dangerous. About a third of his patients experienced it; it was usually mild but in some cases was very severe and persisting. He has never witnessed postoperative nausea or vomiting with this technic, nor any disturbance in respiration or the circulation or nervous system with the exception of one case in which bulbar symptoms developed but soon subsided under stimulants and hot compresses on the precordial region. With this technic, one assistant can be dispensed with. Another advantage is that the anesthesia is of the conductive localized type, and the bronchi and heart are not affected as with inhalation of anesthetics. The temperature usually runs up but this is not accompanied by any signs of fever; the pulse keeps normal and there does not seem to be any connection between the intensity of the fever and the other symptoms.

Revista de Medicina y Cirugía Prácticas, Madrid

June, 1919, 123, Nos. 1557-1559

Pyretogenous Pulmonary Tuberculosis. J. Codina Castellvi.—p. 341. Conc'n.
Primary Cerebral Tuberculosis. L. Laredo Vega.—p. 381.
Hemophilic Family. A. Ballesteros Alcayde.—p. 386.

Semana Médica, Buenos Aires

May 29, 1919, 26, No. 22

*Varicocele. R. Finochietto.—p. 559.
*Pyoculture. P. Delbet and N. Fiessinger.—p. 568.
Necessity for System of Gratuitous Midwifery. J. A. Beruti.—p. 579.
The Public Health in Spain and in Argentina. E. R. Coni.—p. 580.

Varicocele.—In this profusely illustrated article, Finochietto analyzes the experiences with eighty cases of varicocele, all on the left side, with operative treatment in all but eleven cases. The ideal treatment is to dissect out the spermatic artery and transplant the veins inside the abdomen. The more practicable procedure is the high separation of the spermatic artery and resection of the veins accompanying it, with transparietal transplantation of the anterior bunch of veins, with care not to kink or injure them.

Pyoculture.—This term was devised to express the systematic cultivation of germs from the pus of wounds as a means of keeping oversight of its course. The pus is taken with a pipet close to the tissues; the tip is then fused and the pipet incubated for from twenty to twenty-four hours. The tip is then broken off and the pus is spread on a slide and a bouillon culture is also made. This procedure is repeated, and it is by comparison of three successive slides that the course of the suppuration can be estimated according as the different bacteria grow more numerous or less, and as their proportionate numbers vary. A negative pyoculture may contraindicate amputation when the clinical condition seems to demand it, and successive pyocultures give an insight into conditions, it is said, far beyond anything otherwise attainable.

June 5, 1919, 26, No. 23

*Pediatrics in Argentina. M. Acuña.—p. 583; Id. L. Velasco Blanco. —p. 594.
Prophylaxis of Child Abandonment. G. Araoz Alfaro.—p. 590.
Early Diagnosis of Gastric and Duodenal Ulcers. H. Garcia Lagos. —p. 593.
Film Treatment of Burns. M. Critto.—p. 598.
*Changes in the Teeth of Children from Nutritional Derangement. C. R. Castilla.—p. 599.
Mortality from Infectious Disease. E. R. Coni.—p. 601.

Pediatrics in Argentina.—This is the inaugural lecture of Professor Acuña's regular course in pediatrics, and of Velasco's "free" course in the same subject.

Morbidity of the Teeth Secondary to Nutritional Disorder.—Castilla has been making a special study of the relations between anomalies and caries in the teeth and gastro-intestinal derangement. He found that children with a history of nutritional disorders frequently had abnormal teeth, the enamel was less perfect and tartar and caries were frequent. Children who seemed to have kept in good health had much more perfect teeth than those with a gastro-intestinal past, especially colitis. He noted also that the intensity of the morbid changes in the teeth were always proportional to the duration and intensity of the nutritional process. These changes in the teeth were found in children of 1½ to 4 years old. In older children, apparently healthy but with these changes in the teeth, investigation of the antecedents nearly always disclosed the same causes as in the others. Removal of the tartar only transiently arrests the process.

Siglo Médico, Madrid

July 5, 1919, 66, No. 3421

*Histopathology of the Spleen in Banti's Disease. F. Jiménez Asúa. —p. 533.
*Immunization against Necrosis. Camilo Calleja.—p. 536.
Imbecility with Crises of Mania. A. Sánchez Herrero.—p. 538.

Histopathology of the Spleen in Banti's Disease.—The research here reported by Jiménez was undertaken under a grant from the Junta para ampliación de estudios en el extranjero. The work was done at the Instituto de Anatomia Pathologica at Naples. Nothing suggesting tuberculosis, syphilis, malaria or streptothrix lesions could be detected in the spleen in the six cases of Banti's disease described in detail. No one yet has succeeded in reproducing the disease by inoculation or by cultivation of germs from it. Jiménez is convinced that it has no specific agent, but that ordinary toxi-infections in persons predisposed thereto are liable to whip up the functioning of the spleen and entail finally a tendency to fibrous degeneration of the gland. He found this fibroadenia in every one of the spleens examined, although in different phases of the process. The liver may long escape in which case the disease may be classed as merely splenic anemia, but closer study of such cases and their ultimate course confirm their identity with the first stage of Banti's disease.

Immunization Against Necrosis.—Calleja explains that the derivatives of empiric medicine, the blisters, the fixation abscess, etc., owe their efficacy to the fact that they induce an active and a passive immunization against the effects of the necrosis of the tissues in the disease process. Subcutaneous injection of 3 or 4 drops of chloroform at different points, to a total of from 3 to 50 c.c., is a convenient method of this "causticotherapy," and it can be usefully supplemented with horse serum prepared like diphtheria antitoxin, only using, instead of diphtheria bacilli, human tissue scraps rendered necrotic with chloroform. The aim in treatment is to immunize against necrosis, not to combat the inflammation, etc., which latter are salutary reactions on the part of the tissues. Antinecrosic immunization by this causticotherapy

is applicable, he reiterates, as a preventive adjuvant in the pathogenic treatment of acute disease, such as pneumonia, typhoid and shock. But its special field, he adds, is in the cure of chronic disease, immunizing the patient against the necrotic products generated by the disease, instead of wasting time in the usual efforts to combat the symptomatic manifestations of the curative reaction, either toward restitution or substitution. This immunization is realized, he explains, by the polypeptids formed by the dissolution of the cauterized cells, but it is necessary to keep these cytolytic substances below the amounts that would do damage from excessive action. Calleja quotes from Turck's work, and reiterates that we must remember that bacteria are not like seeds. Seeds are sown in an inert soil, and all the development that results is in the seed and the resulting plant. Infection, on the other hand, is like a fecundation, in which the body cells are the fecundated elements. By immunizing against any resulting necrosis, we may be able to shorten the course of tuberculosis and joint disease and reduce the mortality.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 14, 1919, **1**, No. 24

Vision in Semidarkness and Night Blindness. C. O. Roelofs and W. P. C. Zeeman.—p. 2101.
Experiences with Neoarsphenamin among British Interned Prisoners of War. C. J. P. van Dijk and F. H. J. A. Wilmar.—p. 2112.
Brown Bread or White Bread? M. Hindhede.—p. 2115.
*Chronic Aspiration of Food Particles into Lung. H. van Wely.—p. 2119.

Chronic Aspiration of Food Particles Into Lung.—Roentgen examination showed numerous particles of food in the lungs of a previously healthy man of 50 who for the last year had had increasing difficulty in swallowing. After a bismuth meal some of the bismuth was seen in the lungs, and a communication with the air passages was assumed as the assumption of cancer seemed probable. Necropsy failed to show any communication, however, and the only explanation of the findings must be that the food, meeting the obstruction in the esophagus, was coughed up each time, and instead of being expelled passed over into the air passages. The absence of any inflammatory reaction to the food particles was a remarkable feature of the case.

Hospitalstidende, Copenhagen

July 23, 1919, **62**, No. 30

*Retrograde Incarceration of Hernia. E. Henningsen.—p. 873.
*Fascia Plastic Operation for Radial Paralysis. Id.—p. 881.

Retrograde Incarceration of Hernia.—Henningsen in the last two and a half years has encountered three cases of this kind, the series illustrating the various steps of the process. The patients were adults with inguinal hernia of long standing. He reviews the literature on retrograde incarceration, remarking that the diagnosis has seldom been made beforehand, but it might be suggested by the severe general symptoms and the signs of beginning peritonitis when a hernia becomes incarcerated without showing much in the way of local symptoms. The outlook is much graver, naturally, than with ordinary incarceration, on account of the disturbance in the circulation. In Wendel's compilation of seventy-five cases, the mortality was 62.5 per cent. in the twenty-four cases in which the intestine was resected; five died of the six treated by an artificial anus, and five died after the intestine had been restored to place. The total mortality was 42.7 per cent. In Henningsen's own cases he operated in two only four or five hours after the first symptoms, and the incarceration had not been so tight as to compromise seriously the circulation, so that the W hernia was readily reduced. In his third case the man was too debilitated to stand the resection which conditions demanded.

Fascia Transplantation to Correct Radial Paralysis.—Henningsen reports complete success in the correction of radial paralysis in a boy of 12 after a compound fracture of the humerus. His operation consisted in suturing a strip, taken from the fascia lata, to the tendons of the extensor digitorum, and then suturing the other end to the radius, where it was fastened under the periosteum while the hand was held supine and extended. This leaves all the muscles of the arm intact, in case the paralysis should happen to retrogress later. The boy now uses this hand as well as the other, and electric tests indicate beginning regeneration of the radial nerve.

Norsk Magazin for Lægevidenskaben, Christiania

May, 1919, **80**, No. 5

*Leonardo da Vinci as Anatomist. H. Hopstock.—p. 417.
*Duodenal Ulcer in Influenza. K. Nicolaysen.—p. 502.
*Tuberculin Skin Tests of Schoolchildren at Trondhjem. A. Arnfinsen.—p. 508.
*Convalescents' Serum in Treatment of Influenza. J. Holst.—p. 531.

Da Vinci, the Anatomist.—Hopstock gives photographic reproductions of a large number of da Vinci's famous anatomical drawings which he has been studying and interpreting under a special grant from the university. He declares that da Vinci's work placed him centuries ahead of his contemporaries in knowledge and thought, "a modern biologist in the guise of a medieval artist."

Duodenal Ulcer in Influenza.—Nicolaysen found a duodenal ulcer at necropsy in two cases of influenzal pneumonia. The ulcers seemed to be quite recent, and there seem to be grounds for assuming that they were of infectious origin. Diplostreptococci were found in the lungs and also in the duodenal ulcers. Micro-organisms were found likewise in a duodenal ulcer in a man of 50 who had died from acute myelogenous leukemia.

Tuberculin Skin Tests in Schoolchildren.—Arnfinsen gives a number of large tables showing the response to the Pirquet skin tuberculin tests in 7,969 schoolchildren. It was positive in 37.8 per cent. of the 6,978 in the public schools and in 33 per cent. of the 991 in private schools.

Convalescents' Serum in Influenza.—Holst analyzes his experience with twenty cases of influenza pneumonia in which he gave intramuscular injections of from 10 to 33 c.c. of serum from convalescents' blood, repeated from two to four times. In ten cases the crisis followed the day after the injection. In the other ten no benefit was apparent, and seven of the patients died.

Ugeskrift for Læger, Copenhagen

July 31, 1919, **81**, No. 31

*Weather and Neuroses. J. Mygge.—p. 1239.

Weather and Neuroses.—Mygge remarks that twenty years ago any physician who ascribed pathogenic importance to meteorologic conditions was ridiculed, but the progress of science, heliotherapy, etc., have demonstrated the importance of such factors. He presents further evidence to sustain the assumption that the periodical transient and apparently unmotivated pains and other ill feelings of which certain persons complain are connected with certain changes in weather conditions. They are mostly persons with a predisposition to rheumatism or joint troubles. It is not correct to call them "barometer individuals" as the changes in air pressure are not what causes the attacks, and an indirect action of heat or cold cannot be demonstrated either. It would be more accurate to call them "electroscope" or "electrometer people," for there is much to sustain the assumption that there is a causal connection between the attacks and certain changes in the electrodynamic state of the air, such as is manifested in the so-called convection currents which accompany formation of rain, snow, hail, fog, etc. He adds that it may yet be possible to obtain some control over these currents in inhabited localities. Systematic research in this line may lay the foundations for study of the electric life of the cells, and when the time is ripe for this, there may develop a theory of electrodynamics of which there are already glimmerings scattered through medical literature. The influenza epidemics point that way, as the assumption seems plausible that only atmospheric changes or something of that nature can explain the sudden acquiring of virulence the world around by ordinarily harmless saprophytes, or the sudden lowering of the resisting power against these saprophytes. Mygge suggests cooperative study along these lines by physicians and meteorologists.